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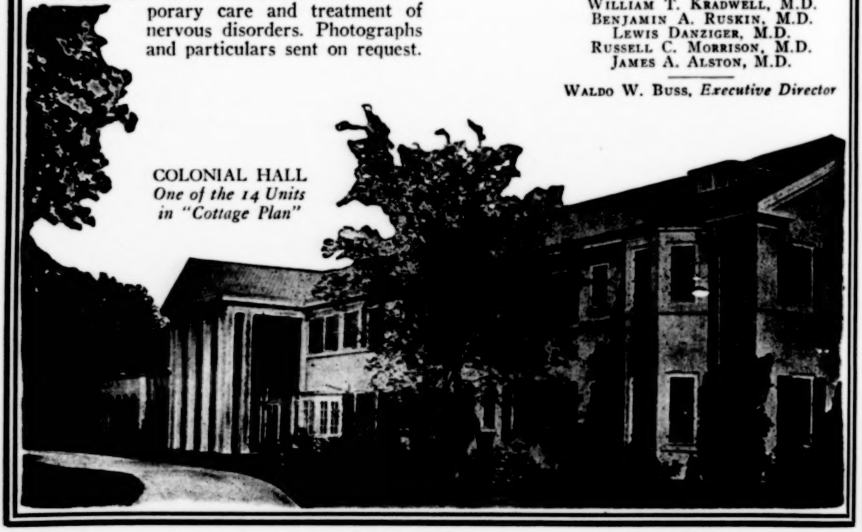

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The Journal of
Nervous and Mental Disease

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CLINICAL REACTIONS OF SCHIZOPHRENICS TO SODIUM AMYTAL, PERVITIN HYDROCHLORIDE, MESCALINE SULFATE, AND D-LYSERGIC ACID DIETHYLAMIDE (LSD25)

HARRY H. PENNES, M.D.*

The effects of administration of a drug on mental symptomatology should depend on the interaction between the specific properties of the drug and individual factors in the subject within the total set of circumstances attending the administration. If drug specificity is significant, (a) a given drug should induce characteristic effects in a series of subjects, and (b) the same subject should display different reactions with dissimilar drugs. If individual factors within the subject significantly influence the reactions, some possibilities are that, (a) the same drug may induce different mental reactions in various subjects; (b) the same subject may show the same mental alterations in response to different drugs. These hypotheses were tested in a series of schizophrenic patients, each of whom received three or four chemically and pharmacologically dissimilar drugs on different occasions. The drugs employed were sodium amytal, pervitin hydrochloride, mescaline sulfate, and d-lysergic acid diethylamide, all of which are capable of producing profound alterations in abnormal mental states (2, 4, 9, 13, 15, 19). The earlier reports of Hoch (4) and Hoch, Cattell, and Pennes (5, 6) will be quantitated in certain aspects and new considerations introduced. Rubin, Malamud, and Hope also used the technique of independent administration of different drugs to study drug-specific and individual-specific psychological changes (16).

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MATERIAL AND TECHNIQUE

Fifty-five schizophrenic patients were studied, 28 males and 27 females. These individuals were classified into three groups according to diagnosis and degree of deterioration. Twenty patients classified as Group I presented symptomatology of predominantly severely neurotic type in a basically schizophrenic framework and were diagnosed as pseudoneurotic schizophrenics, in accord with the criteria of Hoch and Polatin (8); no deterioration was present in these patients; mean age was 35.8 years, and mean duration of illness was 12.6 years. Twenty-five patients, Group II, were all overt or classical schizophrenics with no or slight deterioration and were represented by 3 paranoids, 3 catatonics, 1 hebephrenic, and 18 mixed or unclassified schizophrenics; mean age was 32.2 years, and mean duration of illness 9.1 years. Ten patients of Group III were also overt or classical schizophrenics but with moderately severe to severe deterioration, and were represented by 2 catatonics, 1 paranoid, and 7 mixed or unclassified schizophrenics; mean age was 32.4 years, and mean duration of illness 9.9 years. The majority of Group I and II patients were relatively short-term voluntary hospital admissions with average durations of hospitalization of 0.9 and 1.6 years, respectively; all members of Group III were committed state hospital patients, hospitalized on an average for 5.7 years prior to this study. The majority of subjects of Groups I and II had previously received some form of psychotherapy. Electric convulsive and/or insulin coma treatment had been previously administered at least once during the course of the illness to 9 patients of Group I, 22 of Group II, and all 10 of Group III.

The majority of the patients received some type of psychosurgery, principally frontal topectomy, several days to several months after these drug studies. The effects of the surgery on the mental condition will be presented elsewhere (7). All the patients received a preliminary psychiatric study with complete anamnestic data and cross-sectional evaluation of the mental status. Patients had been under close observation by the individual recording the drug data for a period of several weeks to several years prior to the drug experiments. The protocols of the drug experiments were recorded in terms of the usual clinical psychiatric examination. Interview technique during the drug study attempted so far as possible to exclude active manipulation and suggestion by the investigators.

Sodium amytal (Amobarbital sodium, sterile ampoules of 0.5 Gm., provided by Eli Lilly and Company, Indianapolis) was injected intravenously in doses of 0.25-0.50 Gm. in 10 cc. of sterile distilled water at a rate of about 0.05 Gm. per minute. Pervitin hydrochloride (d-desoxyephedrine hydrochloride, sterile ampoules of 20 mg., Smith, Kline, and French Company, Philadelphia) was injected intravenously in doses of 20 mg., or occasionally 40 mg. over a one to three minute period in volumes of 1.0 or 2.0 cc. of sterile isotonic sodium chloride solution. Mescaline sulfate (Bios Laboratories, New York City. Supplied as the pure salt) was injected intravenously in a dosage of 0.4-0.6 Gm. in 20 cc. of distilled water over a five to 15 minute period; solutions were sterilized by autoclaving. D-lysergic acid diethylamide tartrate (Supplied by Sandoz Pharmaceuticals, New York City, for investigation) was given orally in doses ranging from 0.010 to 0.120 mg. after aqueous dilution of ampoule solutions containing either 0.020 mg. per cc. or 0.100 mg. per cc. For the sake of brevity and conformity with previous usage, this latter drug will be referred to as LSD25 in the body of the report.

All 55 patients in this study received amytal, pervitin, and mescaline. Twenty-five patients of this group also received LSD25 in addition, in doses of 0.010 (3), 0.030 (2), 0.040 (1), 0.060 (9), 0.090 (6), and 0.120 mg. (9); 5 patients received the drug twice, the second dose being higher in each case. The sequence of administration of drugs was invariably amytal, pervitin, mescaline, and LSD25. Usually a period of at least two to three days intervened between administration of any two drugs. Amytal and pervitin were given at any time between 9:00 and 4:00 P.M. without restriction of food intake or ordinary ward activities prior to the injection. Mescaline and LSD25 were usually given between 9:00 and 10:00 A.M. after the patient had a very small breakfast without tea or coffee.

METHOD OF CATEGORIZATION OF DRUG RESPONSES

Each protocol was analyzed and summarized according to the effects of the drug administration on the clinical symptomatology. Changes in the subjects' pre-existent mental status were categorized phenomenologically in one of three groups: (1) normalization, (2) intensification, and (3) diphasic responses. Both subjective and objective criteria were employed in these ratings. The normalization response consisted of a reduction or elimination of one or more baseline symptoms so that the subjects' mental status was ameliorated to a variable degree. The intensification response consisted of (a) an exacerbation of one or more baseline symptoms, and/or (b) the appearance of psychopathologic manifestations which were previously not grossly overt. The diphasic response consisted of cominations of normalization and intensification responses in the same subject; many subjects displayed both normalization and intensification features to one drug, either at the same time or in some type of sequence. Considerable variation in degree of response in any direction—normalization, intensification, or diphasic—occurred between subjects which will be referred to later when pertinent.

I. Effects of Each Drug on Clinical Symptomatology

Administration of each drug was followed by relatively specific effects which were to a large degree independent of the individual to whom the drug was administered. The specific effects of each drug were classifiable into two types: (a) basic, primary, or direct actions which occurred fairly independently of the subject's baseline status, and were attributable to the pharmacologic activity of the drug; (b) secondary actions resulting in alterations of the patient's mental status. This classification is offered for convenience in analyzing the complex series of events that usually follows drug administration with the realization that the second type of effect is variably dependent on the basic action of the drug.

The basic actions of the drugs employed are well recognized and may be briefly summarized as follows: Amytal, a barbiturate, consistently produced signs of central depression in the form of sedation and hypnosis (13, 19). Pervitin, a cephalotropic sympathomimetic amine, characteristically yielded signs of central "stimulation" (9, 10, 12). Mescaline and LSD25 basically created transient psychotic phenomena, which included autonomic, sensorimotor, perceptual, emotional, ideational, and behavioral changes in a relatively clear state of consciousness at the dosages employed (3, 5, 18).

The following types of effects occurred with respect to changes in the subject's baseline mental status. Normalization reactions occurred in 65.4 per cent of patients after amytal, 37.0 per cent after pervitin, and in 0.0 per cent after mescaline and LSD25. Intensification reactions were present in 100.0 per cent after mescaline, 64.0 per cent after LSD25, 20.4 per cent with pervitin, and 10.9 per cent with amytal. The remaining responses were diphasic in nature, as follows: pervitin, 42.6 per cent; LSD25, 24.0 per cent (three subjects, or 12.0 per cent, showed no effect on the baseline clinical symptomatology with the dosages of LSD25 employed.—(See Section IB, 2).); amytal, 23.7 per cent, and mescaline, 0.0 per cent. Thus, the majority responses of the group were normalization with amytal, and intensification with mescaline and LSD25. Pervitin was neither a preponderant normalizer or intensifier; the most frequent type of response with this drug was diphasic (42.6 per cent) or mixtures of normalization and intensification.

The sections that follow (IA, B) deal with the specific effects of each drug in terms of the alterations induced in baseline symptomatology.

A. Amytal and Pervitin. Both of these drugs reduced or increased essentially the same wide range of symptoms in the material as a whole. These normalization and intensification effects occurred with signs of sedation and hypnosis after amytal, and with signs of central "stimulation" after pervitin. A given symptom was either reduced, intensified, or unchanged in different subjects with each drug.

1. Normalization Responses. Characterictic symptom-complexes were reduced or eliminated by amytal and pervitin. In Group I (pseudoneurotics) and some of Group II (overt schizophrenics, no or slight deterioration), these symptoms included anxiety, tension, irritability, hostility, depression, guilt, and inferiority feelings, and self-concern; in some of Groups II and III, (overt schizophrenics, severely deteriorated), unreality feelings, affective and contact impairment, gross catatonic manifestations, mannerisms, and stereotypies, and occasionally thinking disorders were lessened. The normalization effects were quite transient, lasting usually one to three hours with amytal and six to eight hours or longer with pervitin. In general, the frequency of occurrence and intensity of normalization response with both drugs were highest in the pseudoneurotic and least in the severely deteriorated schizophrenic group. In a small minority of subjects, rather complete normalization occurred after a small dosage of amytal (0.05—0.10 Gm.) with little, if any, apparent sedative action.

The higher frequency of amytal over pervitin as a normalizer was most apparent in Group II subjects (overt schizophrenics with no or little deterioration) in whom 64.0 per cent of patients normalized with the former drug and 28.0 per cent with the latter. The smallest difference between amytal and pervitin as normalizers occurred in the pseudoneurotics of Group I of whom 75.0 per cent normalized with amytal and 55.0 per cent with pervitin.

2. Intensification Responses. Most of the symptoms that were reduced in some subjects (I.A.1) were intensified in other subjects. The range of symptoms intensified by each drug included emotional lability or instability, with depression, self-depreciation, shame, hostility, suspicion, and tension; anxiety, phobic or hysterical manifestations; catatonic withdrawals, excitement, rigidity or cerea flexibilitas; paranoid reactions; inappropriateness, grimacing, mannerisms and stereotypies; thinking disorders; auditory hallucinations; and compulsive urges.

The intensification reactions occurring under pervitin were usually more intense and of longer duration than those under amytal. In particular, emotional outbursts of diverse types and catatonic exacerbations (withdrawal or excitements) were often quite severe under pervitin and in some cases much more intense than the reaction of the same subject even to mescaline of LSD25.

Neither the nature or the intensity of the reactions to either drug could be predicted in a given subject on the basis of his previous clinical status.

3. DIPHASIC RESPONSES. The changes enumerated above under normalization and intensification were all represented in the diphasic responses. Subjects reacting in this fashion were characteristically rendered quite unstable and fluctuant; symptomatic reduction in one sphere was attended either simultaneously or in sequence with intensification effects in other spheres.

4. COMPARISONS OF REACTIONS OF SAME INDIVIDUAL TO AMYTAL AND PERVITIN. Pseudoneurotic schizophrenics (Group I) normalized with both drugs in 45.0 per cent of cases, whereas the overt schizophrenics normalized with both in 28.0 per cent of Group II and in 10.0 per cent of Group III. Symptom intensification with both drugs (either as part of a pure intensification or a diphasic response) on the other hand occurred more frequently in the overt than in the pseudoneurotic schizophrenics: the frequencies were 20.0 per cent in Group I, 36.0 per cent in Group II, and 40.0 per cent in Group III. In those subjects who showed intensification phenomena with both drugs, the particular symptoms which were exaggerated were the same under both drugs in 9 (Table I, Group A, and subjects 3, 5, and 7 in Group B) and different in 8 patients (Table I, Group B, all subjects except 3, 5, and 7).

B. Mescaline and LSD25. The characteristic effect of both these drugs (exclusive of the basic action) consisted of an exacerbation of pre-existent symptoms. The description that follows refers only to changes in these baseline manifestations.

1. RESPONSES TO MESCALINE. Administration of mescaline resulted in some degree of increase of some aspects of pre-existent symptomatology in all 55 patients in this series, (100.0 per cent intensification effects). Most of the symptoms intensified by amytal and pervitin (I.A.2) were the same as those exacerbated by mescaline. These symptoms were: anxiety and tension, hostility; paranoid manifiestations; depression, usually agitated but occasionally retarded; hypochondriasis, phobias, somatic delusions; inappropriateness, silliness, mannerisms, and stereotypies; hysterical manifestations; inferiority feelings; catatonic withdrawals, occasionally excitement; unreality feelings; and thinking disorder. Patients in Groups I and some of II tended to react to mescaline with a predominantly anxiety-tension-hostility-paranoid syndrome; some patients of Groups II and all of III reacted with exaggerated overt

schizophrenic symptomatology. Four patients out of 20 in Group I were also considered to display overt schizophrenic reactions under the drug, whereas the remainder in this group showed some type of intensification of the pseudoneurotic baseline.

Rough clinical quantitation of the mescaline intensification response (exclusive of physiologic and perceptual effects) showed that 39.0 per cent of subjects reacted severely, 32.2 per cent moderately, and 28.8 per cent slightly to administration of the drug. About half of the 28.8 per cent who were slight reactors showed only threshold changes from the baselines. It is apparent therefore that the intensification reaction to mescaline varied widely in intensity in different subjects. Individual prediction of the intensity of the response could not be made accurately in a given subject on the basis of the clinical status.

2. RESPONSES TO LSD25. Responses to LSD25 in 25 subjects were classified as intensifications in 16 (64.0 per cent), diphasic (mixtures of intensification and normalization) in 6 (24.0 per cent), and absent in 3 (12.0 per cent), LSD25 intensified essentially the same symptoms in the total material as have been itemized for amytal, pervitin, and mescaline. Normalization features with LSD25 in the 6 subjects rated as diphasic reactors were: (a) definite relaxation, descreased anxiety and tension, descreased concern over phobias and compulsive urges, 4 patients; (b) subjective euphoric state with lifting of depression, 1 patient; (c) improved affective display and general contact, 1 patient (catatonic). In addition to these major reactions, minor degrees of relaxation occurred in at least 4 other patients. Objective signs of sedation, such as drowsiness and slurred speech, were present and patients some times commented on the "sedative" action of the drug with several comparisons to the effects of alcohol by mouth. Despite a relaxant action of the drug, some subjects simultaneously felt anxious under LSD25, because they feared a repetition of the mescaline experience (mescaline was always administered before LSD25 in this series).

The threshold dosage of LDS25 varied over the following range. The 0.010 mg. dosage produced some physiologic responses in 3 patients without definite psychic change; these 3 subjects have been classified above as nonreactors. At 0.060 mg., 5 out of 9 subjects reacted with physiologic, perceptual, and emotional changes; the same occurred with 4 out of 6 subjects given 0.090 mg., and in all 9 subjects who received 0.120 mg. Previous observers have also noted this variation in threshold response to the drug (3, 18).

3. COMPARISONS OF EMOTIONAL AND BEHAVIORAL INTENSIFICATION REACTIONS OF SAME INDIVIDUAL TO MESCALINE AND LSD25. Three relation-

ships could be discerned between the reactions of the same patient to both drugs. The first group of 9 subjects showed similar emotional and behavioral intensification responses to both drugs: (a) 6 were predominantly anxious, agitated with depressive features, and also displayed varying degrees of hostile-paranoid-reactions; (b) 1 was only irritable, hostile, and tense; (c) 1 was predominantely ecstatic (sexual content) with concomitant hostile and paranoid features, and (d) 1 ambulatory catatonic showed increased withdrawal. A second group of 9 patients had qualitatively dissimilar emotional and behavioral reactions to the two drugs: (a) 5 intensified in various fashion with mescaline but were normalized to some degree with LSD25 (the diphasic reactors of I.B. 2); (b) 1 had different intensification reactions under both drugs; and (c) 3 who intensified under mescaline showed little or no reaction to LSD25 (at the 0.010 mg. dose). In the third group of 7 patients, the emotional and behavioral responses were partially similar and partially dissimilar under the two drugs.

II. Comparison of Reactions of Same Individual to Amytal, Pervitin, Mescaline, and LSD25 (Table 1)

In this section the term "intensification reactor" designates a subject who displayed some type of intensification of symptomatology with each drug. Seventeen such patients out of the series of 55 (31.0 per cent) responded in this manner to amytal, pervitin, and mescaline; in the 25 cases receiving LSD25 in addition, 7 (28.0 per cent) reacted likewise. There was no group of "normalization reactors" in the material each of whom could be characterized by normalization features with all drugs, because all the responses to mescaline were rated as intensification. The relatively high frequency of normalization with amytal and pervitin, particularly the former, of course lowered the incidence of subjects reacting with symptom intensification to all drugs.

A. Analysis of the Group of Intensification Reactors (*Table 1.*). 1. Only 2 subjects (Table I) had pure or uncomplicated intensification responses to all drugs. The remaining 15 showed a diphasic response to either amytal or pervitin, or both, and in one case to LSD25 (B 9, Table I). Consequently, most of this group of intensification reactors had partial normalization responses to amytal or pervitin, or both, and in one case to LSD25, but each individual in the group did show some type of symptom exacerbation with each drug as tabulated.

2. Each intensification reactor showed either the same (Table I, A, 6 patients) or different (Table I, B, 11 patients) symptom exacerbations with all the drugs. A uniform reactor had the same manifestations

TABLE I.—QUALITATIVE COMPARISON OF INTENSIFICATION RESPONSES OF SAME PATIENT TO AMYTAL, PERVITIN, MESCALINE, AND LSD25

<table>
<tr><td colspan="5">A. <i>Similar Intensification Responses to All Drugs</i></td></tr>
<tr><th>PATIENT</th><th>ANYTAL</th><th>PEVITIN</th><th>MESCALINE</th><th>LSD25</th></tr>
<tr><td>1. B.L.(I)</td><td>D</td><td>D</td><td>I</td><td>—</td></tr>
<tr><td></td><td colspan="4">Anger, tension, depression, frustration</td></tr>
<tr><td>2. I.D.(SH,II)</td><td>I</td><td>I</td><td>I</td><td>—</td></tr>
<tr><td></td><td colspan="4">Irritability, suspicion, hostility, evasiveness, blocking and fragmentation</td></tr>
<tr><td>3. B.W.(SM,II)</td><td>I</td><td>D</td><td>I</td><td>I</td></tr>
<tr><td></td><td colspan="4">Depression, self-depreciation, anger, perplexity, and obsessive-rumination</td></tr>
<tr><td>4. R.L.(SU,II)</td><td>D</td><td>I</td><td>I</td><td>I</td></tr>
<tr><td></td><td colspan="4">Anxiety and depression</td></tr>
<tr><td>5. A.S.(SM,III)</td><td>I</td><td>I</td><td>I</td><td>—</td></tr>
<tr><td></td><td colspan="4">Hebephrenic accentuation with agitation, stereotypies, mannerisms, grimacing, and helplessness</td></tr>
<tr><td>6. M.M.(SC,III)</td><td>I</td><td>D</td><td>I</td><td>—</td></tr>
<tr><td></td><td colspan="4">Increased catatonic status</td></tr>
<tr><td colspan="5">B. <i>Dissimilar Intensification Responses to All Drugs</i></td></tr>
<tr><td>1. K.T.(I)</td><td>D
Transient auditory and visual hallucinations</td><td>I
Tension and depression</td><td>I
Hebephrenic-type disintegration</td><td>—</td></tr>
<tr><td>2. K.C. (I)</td><td>D
Anxiety, hysterical pain, and hyperventilation</td><td>D
Guilt, shame, and depressive discharge</td><td>I
Pseudo-ecstatic sexualized response, with overt hostile-paranoid features</td><td>I
As for mescaline</td></tr>
<tr><td>3. S.B.(I)</td><td>D
Depressive discharge</td><td>D
As with amytal</td><td>I
Terror, agitation; fragmentation more marked</td><td>I
As for mescaline</td></tr>
<tr><td>4. E.E.(SM,II)</td><td>I
Anxiety, hostility, suspicion, evasiveness</td><td>D
Agitated, depressive discharge</td><td>I
Schizophrenic disintegration</td><td>—</td></tr>
<tr><td>5. G.G.(SU,II)</td><td>D
Grandiose, flighty, confused, circumstantial</td><td>D
As with amytal</td><td>I
Hostile, suspicious, depressed, silly; at times grandiose</td><td>—</td></tr>
</table>

B. *Dissimilar Intensification Responses to All Drugs (continued).*

PATIENT	AMYTAL	PERVITIN	MESCALINE	LSD25
6. D.R.(SP,II)	I Verbal and motor withdrawal with paranoid "drugged" feeling	D Impairment of contact	I Primitive terror reaction with reactivation former acute paranoid phase of psychosis	I Agitation, followed by catatonic withdrawal, followed by reactivation former acute paranoid phase
7. M.G.(SM,II)	D Increased anxiety, dependency, lability with crying	D As with amytal	I Terror, agitation with hysterical-catatonic reactions	I Agitation, hysterical-catatonic, suspicious, irritable, hostile
8. D.R.(SC,II)	D Emotional instability, with agitated depression	I Severe excitement, hostility, crying	I Slight increase catatonic withdrawal	—
9. N.E.(SC,II)	D Increased shame, guilt, depression	I Catatonic withdrawal: dazed, preoccupied, withdrawn, rigid affect	I Catatonic withdrawal: flat, evasive, autistic	D Alternating periods improved and decreased affect and contact
10. P.F.(SM,III)	D Increased grandiosity, inappropriateness	D Increased incoherence, decreased contact	I Agitation followed by massive catatonic withdrawal	—
11. L.M.(SM,III)	D Increased inappropriateness, more actively paranoid delusional	I Catatonic disintegration, withdrawal, depression, inappropriateness, increased auditory hallucinations	I Massive catatonic withdrawal with occasional rage outbursts	—

The above table lists those subjects who displayed symptom intensification of any type under each drug that was administered (intensification reactors). Each intensification reactor either had similar (Group A.) or dissimilar (Group B.) manifestations with all the drugs. The over-all reaction to each drug is classified either as diphasic (D) or pure intensification (I). Diphasic reactors also showed some normalization features with the drugs which are not included in the tabulation. For analysis of table, see text II, A.

The parentheses after the patients' initials contain the diagnosis and deterioration rating as follows:

I = pseudoneurotic schizophrenia, undeteriorated
II = overt schizophrenia, absent or slight deterioration
III = overt schizophrenia, moderately severe or severe deterioration
S = schizophrenia
H = hebephrenic
C = catatonic
P = paranoid
M = mixed
U = unclassified

and a nonuniform reactor had different manifestations under the drugs. The terms "uniform" and "nonuniform" reactors refer in this connection only to the symptom intensification aspects of the drug reactions. It is not implied that uniform reactors necessarily duplicated the same ideational and behavioral output in the complex series of events that followed administration of each drug. In particular, the ideational content sometimes varied considerably under different drugs, even in a uniform intensification reactor.

(a) Six uniform intensification reactors (Table I, A) showed the following responses under each drug. Subject 1: Increased anger, tension, depression, and frustration. Subject 2: Increased irritability, suspicion, hostility, evasiveness, blocking, and fragmentation. Subject 3: Increased depression, self-depreciation, anger, perplexity, and obsessive-ruminative activity. Subject 4: Increased anxiety and depression. Subject 5: Increased hebephrenic reaction. Subject 6: Increased catatonic reaction. It is apparent that the quality of a uniform intensification reaction differed considerably in the various subjects.

(b) Eleven nonuniform intensification reactors varied both as to types of intensification reaction displayed by a given subject with the different drugs and between different subjects (Table I, B). In a slight majority of cases, 3 different types of intensification reactions occurred under amytal, pervitin, and mescaline for a given subject, while the response to LSD25 tended to parallel the mescaline response.

3. In practically all reactions, both uniform and nonuniform, the intensification phenomena listed in Table I. were exaggerations of pre-existent manifestations which were previously present either subjectively or objectively. The principle exceptions were: (1) 1 subject (K.T.) who had auditory and visual hallucinations under amytal without a previous history of such; (2) 1 subject (K.C.) who was paranoid under mescaline and LSD25, but who showed little or no evidence for this trend otherwise, and; (3) 1 subject (D.R.) who showed a cataonic reaction under LSD25 although diagnosed as an uncomplicated paranoid.

B. Analysis of Possible Differences Between Intensification Reactor Group and Remainder of Material. The delimitation of an intensification reactor group within the total material was a product of the methodological approach operating on certain possible differences between the subjects composing the series.

1. METHODOLOGICAL CONSIDERATIONS. (a) The sequence of drug administration to each subject was invariably amytal, pervitin, mescaline, and LSD25. It was possible that as a subject was progressively exposed to a series of drugs, some power of resistance on the part of the

patient to these successive changes of internal environment weakened and intensification reactions occurred more readily. Since all patients received the drugs in the same order, this explanation would not be sufficient to account for the differences in response between the intensification reactors and the rest of the material. Moreover, an intensification reactor had to display some type of symptom exacerbation with amytal, the first drug to be administered, to be classified as such a reactor. Some subjects showed less intensification effect with mescaline than with pervitin which had been given previously. Finally, some subjects receiving LSD25, the last drug in the series, had considerable normalization with this drug (Section I, B, 2) after preliminary intensification with the earlier drugs.

(b) The three or four drugs were usually administered over a minimum six to eight day period. Subjects with intense and frequent fluctuations of the baseline clinical status during this period might be supposed to be inherently more unstable and consequently more predisposed to disintegration under drugs. However, there were roughly equal spontaneous fluctuations within the intensification reaction group and the remainder of the series. Spontaneous fluctuations actually were rather infrequent and minor in the total material which had been seriously ill for relatively long periods and had adjusted to the hospital environment in which the drugs were administered.

2. DIFFERENCES IN THE MATERIAL. (a) Major differences could not be found between the group of intensification reactors and the remainder of the subjects as to age, sex, duration of illness or hospitalization, diagnosis, intensity of major symptoms, or degree of deterioration.

(b) It is possible that certain psychologic differences occurred between intensification reactors and the rest of the material. Drug administration to a subject invariably entails a psychologic constellation which involves the subjects' emotional, attitudinal, and motivational reactions to the investigator and the total setting of the procedure. These factors begin to operate before the drug is given, may potentially modify the response during the drug action and imbue the entire experience with individual meaning and significance, as analyzed for patients under mescaline by Cattell (1). Patients approached the investigator and drug administration with various mixtures of anxiety and tension, resentment and suspicion, depression, guilt, optimism (hope of therapeutic effect), apathy, indifference, submissiveness or resistance, or inappropriateness. The individual's approach to the procedure was heavily influenced by and merged with his current psychopathologic status, and, as already stated, the intensification phenomena under the drugs were nearly always exacerbations of that status.

It may be supposed that in the intensification reactors, the psychologic constellation was qualitatively and/or quantitatively such that disintegration under the drugs was facilitated. In a considerable proportion of intensification reactors, the predominant drug response often appeared to be a direct continuation of the pre-existent emotional status, attitudes, and motivations. This factor weighed heavily in the reactions of those 6 subjects who displayed the same intensification phenomena under all drugs (Table I, A). In these subjects there was a more or less overt interplay between the patient's approach to the experiment, his previous affective, attitudinal, and motivational reactions, and his responses to the drugs. Anxiety, hostility, depression were verbalized in terms of the immediate situation with emphasis on such factors as fear of the direct effects of the drug, resentment at being subjected to an unusual procedure, and depression in terms of increased feelings of frustration and futility.

However, the individual psychologic constellation could not be considered of crucial importance in creating the intensification reactor group because other subjects with apparently similar approaches both qualitatively and quantitatively in terms of emotional, attitudinal, and motivational factors were not in this group.

(c) It is possible that all mental patients have an inherent tendency to disintegration or symptom intensification, independently of psychologic factors, which is rendered overt by the application of drugs independently of the particular nature of the drugs. If this explanation of nonspecific reaction to any stress were sufficient, it would be expected that the responses of a given subject to each drug, regardless of direction, would show certain intensity relationships. For example, (1) subjects normalizing poorly with amytal or pervitin (the most potent normalizers of the four drugs) should have the most severe intensification under mescaline. Such results did not occur consistently because, for example, 3 out of 4 cases with the most complete degrees of normalization under amytal and pervitin (pseudoneurotics, Group I) also had the most severe disintegration effects under mescaline; (2) subjects with the most severe intensification under amytal and pervitin (the most potent normalizers) should likewise have the most severe intensification with mescaline. This result did not eventuate consistently because the most severe pervitin intensifiers (usually Group II) often had relatively mild effects with mescaline; (3) as already mentioned (II, A, 1), most of the intensification reactors showed a diphasic response to either amytal or pervitin, or both, and in one case to LSD25. In many of these diphasic responders, the normalization features of the response were at least as strong or stronger than the intensification features, under amytal or pervitin, or both.

The lack of crucial evidence for the above hypothesis (c) is partially caused by the fact that amytal and pervitin (and to some extent LSD25) possess considerable normalization to potential and consequently these drugs cannot be regarded as pure or unalloyed stresses. For the rigorous qualitative and quantitative testing of the hypothesis that latent disintegration tendencies were rendered overt, pure stresses would naturally have to be applied. It is consequently concluded that the intensification reactors may still differ qualitatively or quantitatively from the rest of the material as to a latent disintegration tendency, but that this difference could not be inferred with the special methodology employed, particularly on account of specific drug properties.

Discussion

The mental reactions to drug administration were significantly influenced both by the specific nature of the drug and individual properties of the subject, and an interaction between these two factors within the total set of circumstances attending the administration. The specificity of all the drugs used in this study was manifested in two ways. The first was a basic, primary, or direct drug action which eventuated independently of the subject's baseline status and which represented the pharmacologic fraction of the drug's effects. These effects were qualitatively dissimilar for the different drugs, the closest resemblance being between mescaline and LSD25, and tended to occur in a stereotyped form in the majority or all subjects with a given drug. The portion of this report dealing with drug specificity has been mainly concerned with the second type of drug-specific action, characterized by change-normalization, intensification, or diphasic—in the subject's mental status. In general each drug had a relatively specific action viewed within this framework.

Individual factors also significantly affected the mental reactions to drug administration in the sense that (a) the same drug induced a wide variety of different mental reactions in various subjects, (b) the same subject, in 28.0-31.0 per cent of the material, showed intensification reactions, either uniform or nonuniform, despite chemical and pharmacologic differences between the drugs. Rubin, Malamud, and Hope also concluded that their schizophrenic subjects showed changes partly specific for the drug and partly for the individual (16). Their individual factors were analyzed in terms of the particular personality of the subject and specific content of the psychosis, whereas the individual factors in the present study were analyzed in terms of normalization and intensification of the psychopathologic clinical status.

Intensification reactors showed symptom exacerbation under amytal and pervitin (instead of pure normalization) as well as under mescaline and LSD25. The mechanism is not established whereby some subjects intensified under amytal and pervitin whereas others of the same clinical description normalized with these drugs. The literature on the effects of sodium amytal in mental patients has in general stressed the therapeutic, or normalization action of the drug. However, Wolf and Ripley, among others, have also noted that symptoms such as anxiety and tension may be increased under the drug, particularly by appropriate manipulation of the interview by the examiner (21). In the present series no psychologic manipulation or suggestion was intentionally employed and all the effects ensuing with amytal, as well as the other drugs, occurred independently of this factor. The literature on pervitin has also consistently revealed that this drug may either relieve or exacerbate the same abnormal mental state (2, 9, 12).

As far as mescaline and LSD25 are concerned, both of these drugs produced intensification effects regularly as part of an artificial, transient psychosis (5). However, LSD25 possessed definite normalization effects as described which were not shared by mescaline; part of this dissimilarity may be caused by the difference in routes of administration in this study, mescaline being injected intravenously and LSD given orally. It is known that the ergot alkaloids, of which LSD25 is a partially synthetic representative, both stimulate and depress the central nervous system in a highly complex manner in experimental pharmacology (14). Recent clinical reports have furthermore appeared to the effect that the dihydrogenated ergotamine and ergotoxine alkaloids are capable of allaying states of psychomotor agitation in schizophrenics (17). Previous observers have described the euphorizing and relaxant action of LSD25 (3, 15, 18).

The physiologic and perceptual-distortion effects of mescaline and LSD25 were most probably a consequence of the direct or basic pharmacologic activity of these drugs. Accentuation of a variety of psychopathopathologic constellations by these drugs would appear to be less validly explained by this mechanism. A more probable explanation at the present time would be that these intensification reactions were secondary effects characteristic of the reaction patterns of the particular subject who had been exposed to the nonspecific stress of the direct actions of these drugs. The validity of the secondary, nonspecific origin of intensification effects is supported by the fact that a certain group of subjects also reacted with symptom exacerbation to amytal and pervitin (intensification reactor group).

Since intensification reactors to all drugs in this study could not be distinguished by any criteria or hypothesis (II, B, 2) from the rest of the material, it is apparent that there must be undefined differences between mental patients who are apparently similar according to clinical descriptive criteria. This conclusion is in accord with the varied responses of apparently similar mental patients to other procedures employed in psychiatry such as the shock treatments and the psychotherapeutic and psychosurgical techniques.

Much of the data in this study suggest that the mental and behavioral effects of the drugs employed would be difficult to explain exclusively in terms of their "direct" or pharmacologic activity. These data include the following: (a) the same drug produced a wide diversity of effects in different subjects; (b) different drugs sometimes produced the same type of effects in a given subject (c) the same drug often had the opposite effect on the same symptom in different subjects; (d) intensification effects under the drugs were nearly always exaggerations of pre-existent subjective or objective manifestations; (e) the subjects' "psychologic" reactions in many cases seemed to form an important part of the reaction, sometimes continuing after the "direct" drug action should have disappeared. A comprehensive theory of action of any drug used in this study would have to explain at least all these facts to attain general validity.

Specific or "direct" drug action contributed some fraction of the total effect of each drug. Above a certain level of response, it would seem that the mental and behavioral responses became secondary or indirect and resulted from interaction between the pre-existent status of the individual, the drug, and the particular environment (including its methodological approach). Much of the effects with any drug would then be secondary to the primary, or more direct events produced by the agent. These considerations have been expressed in a more general form as "organism," and "stimulus" interaction and properties by Wikler in his recent report on drugs as related to personality function (20). Klüver has enunciated the concept of "equivalence of heterogeneous stimuli" at the Hixon Symposium on Cerebral Mechanisms in Behavior (11), emphasizing that diverse chemical substances may produce the same effects and also that the same stimulus may be dealt with by diverse actions and reactions at the most complex levels of personality. Analysis of the data in this report on the clinical level fully supports Klüver's concept and his conclusion that the properties responsible for particular forms of equivalence are thus far not capable of positive definition. Ultimately much of the data explained above as secondary, indirect or interaction drug effects may be brought into closer relationship with the direct or specific drug action. This would seem to depend on the more exact physicochemical delineation of the mechanism and structure of the psychopathologic symptomatology and drug action.

SUMMARY

1. Sodium amytal, pervitin hydrochloride, and mescaline sulfate were administered independently to each of 55 schizophrenic patients, of whom 25 received LSD25 in addition. The resultant effects were described and analyzed in terms of normalization (reduction) and intensification (increase) of the pre-existent clinical symptomatology.

2. Each of these drugs produced specific effects in two categories (a) direct or basic or primary pharmacologic activity, (b) characteristic effects on mental symptomatology which were a more or less direct consequence of the pharmacologic action. In the latter category, amytal may be classified as preponderantly a normalizer of clinical symptomatology; mescaline and LSD25 as intensifiers; while pervitin tended to produce an unstable state with grossly equal representation or normalization and intensification responses.

3. A subgroup of subjects existed, each of whom showed intensification reactions with each drug that was administered. This and other findings which have been presented indicate that the total effects of drug administration seem to require explanation in terms of secondary, indirect or interaction factors in addition to drug specificity.

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AN ANALYSIS OF COMBINED THERAPY—INDIVIDUAL AND GROUP—IN PATIENTS WITH SCHIZOID, OBSESSIVE-COMPULSIVE, OR AGGRESSIVE DEFENSES*

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In a comprehensive review of the literature on group psychotherapy, Burchard, et al. (1) recently revealed the chaos in the reporting of group therapy. The following presents an analytical method for studying and reporting group therapy. A single group which met 43 times and each member of which concomitantly received intensive individual psychotherapy is so presented.

Several aspects of combined therapy were studied: (a) the economy of group therapy when coupled with individual therapy (b) the effects on a group of having its members in various stages of individual therapy (c) the question of whether the group leader should also be the individual therapist. The problems of conducting such a group are stressed. Though combined therapy tends to be a product of the complexities of both, its inordinately increased subtleties as well as the phenomena that occur within it alone justify distinguishing it as a separate orientation.

PROCEDURE

The frame of reference of the group was to be the dynamic setting much as Schilder (7) described and as has been elaborated in the current works of Foulkes (2, 3), and Powdermaker and Frank (6). As such, a closed group was to be maintained, and a benign type of leadership was to be attempted.

To facilitate a critical approach to each session as well as to group interplay over many sessions, a tape recorder was used throughout. A microphone was placed at the center of the table equidistant from each member. Though time-consuming, it was planned to play back the entire recording of each preceding session at the beginning of each new one to test the effects of such a device upon the group.

The co-author was to be an observer noting on the spot the nuances of individual and group behavior, especially the reactions of the leader. To provide an answer to whether the group leader should also be the individual therapist, three of the patients received individual therapy from a second psychiatrist.

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The meetings were held three times a week in the professional library of the hospital. Including the time for playing back the recordings, each session lasted 90 minutes. After 23 meetings the group wished to have a "free" session each week unattended by either the leader or the observer even though it was recorded and replayed just as any other session.

In selecting the participants in this group, the authors have purposely declined the counseling found in the literature as summarized by Loeser, et al. (5) against the inclusion of obsessive-compulsive neurotics, schizoid and other ingrained character neurotics, and oriented schizophrenics. This has been done in order to examine the influence of individual therapy on the group behavior of these usually group-refractory types. Patients such as these are commonly encountered in institutions such as the VA Hospital in which we worked and challenge every therapist with the time and difficulty their therapy usually entails.

TABULATION OF THE GROUP MEMBERS

Leader's individual patients	*Age*	*No. of hours prior to group*	*Diagnosis*	*Verbalization*
Walsh	30	62	Moderate schizophrenia	Good
Steuler	30	20	Obsessive-compulsive neurosis	Excellent
Ladd	23	18	Mixed neurosis	Good
Lash	25	0	Aggressive character neurosis	Good
Winkle	29	0	Schizoid character neurosis	Poor
Second therapist's patients				
Brent	22	40	Obsessive-compulsive neurosis	Poor
Klinger	23	30	Passive-dependent character neurosis	Good
Kosmitis	28	20	Latent schizophrenia	Poor

The selection of patients was also influenced by the recent investigations of Foulkes (3). He states: "I presume, that the greater the span, the higher the therapeutic potential, as long as the Group is able to master that span without disintegrating. Obviously, the Conductor's potential plays a decisive part in this." The group was limited to eight World War II veterans who regardless of diagnosis had been deemed capable of handling themselves on an open ward. As planned, all but two were receiving individual therapy when the group first met. Hospital expediency dictated that the group aspect of the combined therapy be limited to three months.

This report is concerned with the analysis of each member's habitual reactions within the group and their transformations. In each patient's analysis has also been included the equally important habitual reactions of the group to him. By such a diametrical scheme, a consistent method of investigation seemed to have been found. Since this report is confined to this single group, no attempt has been made to generalize the findings.

The diagnosis of each member based on clinical, psychological, and social studies as well as other data has been tabulated. Familiarity with each patient is best obtained in their individual analyses which follow the remarks on leadership. Fictitious names have been used.

THE EXTENT OF BENIGN LEADERSHIP

In every session the leader constantly had to evaluate his relationship with every patient. With such spontaneous members as Lash, Steuler, Walsh, and Ladd, the leader's early role was to delimit the subjects introduced so that everyone would remain interested. Only after ten sessions, by which time the members had engaged in frank discussions of sexual practices, women, suicide and alcoholism, and had become accustomed to the latitude the leader encouraged, did it seem advisable to permit anyone to concentrate for any prolonged time on a completely personal aspect of a topic. A member like Lash, who loved to hear himself talk in the recordings, had to be restrained with a remark like, "I think what you've said has given Klinger an idea, and he wants to tell us about it." The reticent group of Winkle, Brent, and Kosmitis could occasionally be activated if the leader said, "What you're thinking may be quite valuable." Silences based on stubborn, hostile motives were better handled in private hours.

At the 12th session the leader asked the group whether they could only go as fast as the slowest man. This prompted comments that each might be that man and then a competition of sensational admissions and reflections. Though Winkle and Kosmitis suffered in such rare chain-like reactions, the leader was able to reassure them with the idea that the quality of a well thought out comment might be better for the group than many trivial statements. Many meetings later, Winkle invoked this thought when he condemned Walsh for interrupting and hogging discussions with hackneyed repetitions.

In the earlier sessions the leader was often an arbiter and a source of information. He occasionally resorted to such active remarks as, "If he asked you the same question, how do you think you would feel?" or "You're assuming this to be true, but there are other facts you should know about, such as ——." In the last 20 sessions less suppression of feelings about the leader occurred. Though at times the members tried to get a rise out of him, there was a common anxiety that he would lose his usefulness if he acted as emotionally labile as they. On one such occasion Steuler said, "Even if the doctor does get hurt, he shouldn't show it."

The guilt which was raised by the expression of hostility to the leader within the group by a patient he was seeing individually was never as great as it would have been privately. However, in no instance did such a patient's guilt increase when next seen privately. The tendency noted by Freud (4) for an individual superego in a collective situation to forego some of its severity expedited in the leader's patients that phase of the therapeutic task.

By the 19th session when Brent, Klinger, and Lash had taken leave of the hospital for reasons described later, the remaining five members settled down to a period marked by a multitude of topics frequently reflecting their private hours. Since these hours utilized the classical tools of free association, dream analysis, and interpretation of the transference, the group sessions were kept as far as possible on a reality testing plane. Some group time was spent airing fantasies to give the members an easier feeling about them. During this period discussions might begin on such a topical event as a hospital dance and end with Ladd saying, "I get love only when doing a man's job." Or some accidental event, as when the clinical director walked in and listened with the group to their recording, would arouse an attack on his audacity after he left. After letting this go on for a short time, the leader might link this affect to a particular member by saying, "Isn't this the kind of feeling you told me you had when your father used to barge into your room?" The leader would never betray any material his patients had told him privately unless he was sure that such material was not excessively charged.

Many of the last 15 sessions were spent on various approaches to each patient's obligations to his parents, to himself, and in the last sessions, to each other. Such startling comments that attachments could be based on hatred or guilt as well as on love would occasionally incite attacks on single members. When the leader felt that a patient needed support, he might say, "I wonder why all of you need to attack him."

The leader's remarks, whether addressed to one person or all, had its impact on every member. As judged from the transferences in the private sessions, at no time did it appear that the type of leadership described interfere in any significant way with the private hours of the leader's own patients. As will be seen in the following analysis of each patient's group experiences, some unfavorable effects did occur in the second therapist's patients.

WALSH'S GROUP EXPERIENCES

In Walsh's 62 individual hours prior to group therapy, he had made a tenacious attachment to the leader which was extended into the group sessions in the form of reflecting the leader's ideas and defending him from criticism. Sporadically Walsh would utter an esoteric remark comprehensible to the leader but mystifying to the others. Within the hospital setting the group members had observed the behavior of psychotic patients, and some wondered how firm was their own hold on reality. At each session they were determined to make sense of everything said; consequently, some of Walsh's remarks would be challenged. But in rarely being able to clarify these, Walsh withdrew momentarily, puzzling about his own thinking. Since some members sensed that he was psychotic from his behavior at such times, they were fearful of what their further remarks might do to him. This inhibited many discussions.

Before the third session, Walsh showed the therapist a letter from his wife. She criticized her husband's stubborn, childish conduct. The therapist suggested that her views might be worth his consideration. This proved to be tantamount to rejection. During the third discussion, Walsh sat as far from the leader as possible. Whatever subject arose, he refused to compromise his opinion. Provoked by this, many members pointed out his continual need to be always right—criticism which essentially coincided with that of his wife. Belittled by her and seemingly rejected by the therapist, Walsh's vulnerable defenses collapsed, culminating in a psychotic episode that night.

When the group reconvened, they wanted to know what was wrong with Walsh. They heard that he had been taken to the infirmary for influenza and delirium, but they surmised the true nature of his attack. These suspicions aggravated the fear that any of them might also become worse. Because of this, the next two sessions were sterile.

Walsh returned for the 11th session eager to show that he had recovered. During the next four sessions he resumed active participation and seemed strongly attached to the leader, sitting next to, and stoutly defending, him. But the content of these hours dealt frankly with material which Walsh could hardly master, and in the 15th session almost caused another setback. The events which led to Walsh's crisis seemed to start with his own observation that what might be presumed to be normal intercourse was for some men nothing more than masturbation. The second step was also a statement by him, the cryptic remark—"I want to be a woman." The group pointed out that this attitude was similar to that of a homosexual. The third event was the unexpected narration by Ladd of a dream in which he performed fellatio upon the leader. The final step was Walsh's defense of a ward nurse who the others felt was too motherly. It was clear to both the leader and the observer that Walsh was actually defending his unconscious feminine identification.

Recognizing the implications of his remarks in the recording at the next session, Walsh sat bewildered. At the start of the discussion he began to talk aimlessly. Everyone seemed to understand that Walsh was rescuing himself from another break. No one wanted to interfere. By the next session, with maximum support in his private hours, Walsh had recovered considerably although the new recording, reminding him of the preceding one, produced a noticeable reaction. Walsh was never in trouble again.

In later sessions whenever another member displayed any hostility to the leader, Walsh interceded, often pointlessly protecting the leader. This often handicapped the leader since it deflected the hostility onto Walsh and reduced the tension.

Characteristic of Walsh's activity within the group was his tendency to interpret the remarks of others against the background of his many private hours. Although these interpretations were offered seemingly in a spirit of helpfulness, actually Walsh was either reinforcing a new idea he had partially accepted in private therapy or strengthening an old defense which had been somewhat shaken. An example of this occurred when Ladd related his defiance to having to perform his stepfather's family duties. Walsh came up with the remark, "If you took over his household duties, you'd have to take over his sexual duties, too." As in this case, Walsh's explanations were often uncannily pointed, but since the proper preparation had not always been accomplished, such a premature interpretation merely raised further resistance to it.

At other times Walsh would occupy much of a session with an account of some personal experience. This was usually verbose and circumstantial and would irritate the group because they could not empathize with it. But at times Walsh presented his experiences so lucidly that the entire group could feel with him. When this occurred, Steuler, Ladd, Lash, and occasionally Kosmitis were apt to respond openly, while the rest mulled it over silently. The leader could cope with the resistance of those who verbalized their reaction but could not deal with the silent ones. Those who merely listened could select from the reactions of others whatever could fortify their own opposition to Walsh's anxiety-producing statements. Insofar as this took place, the handling of this material was made more difficult within their private sessions.

A more rare form of Walsh's participation was his tendency to appropriate the leader and engage in a discussion which at first all could follow, but which then turned into an abstruse, personalized consultation. This raised hostility and threatened the filial-like reliance of most members on the leader. By the time the group disbanded, Walsh still showed only dubious tendencies to rely on the group rather than on the leader. He left the hospital five months later after a total of 130 hours of individual therapy. Clinically he was remarkably more adaptable and was voted by the ward as one of its most popular members. Rorschach examinations every few months revealed the identical schizophrenic process but with greatly strengthened defenses when he was discharged.

STEULER'S GROUP EXPERIENCES

The key to Steuler was, that in his zeal to gain group acceptance, his levies on group time invited rejection. Craftily testing everyone's experiences for parallels to his own, he openly refuted their validity and emerged with his old defenses enhanced. Like Walsh, Steuler's interpretations of other members' conflicts were often astute but also raised resistance. Unlike Brent's efforts to get answers for his own troubles through analogy, Steuler's disguised issues sounded pertinent and stimulated discussion of which he was a master at contorting to his own ends. The only major stumbling blocks to Steuler's influence on the direction of the discussions were Walsh and Lash. By coercion or skill they could cause the others to focus on their own problems. This would spark their skirmishes with Steuler.

Many of Steuler's comments, apart from those which were openly aggressive, were felt by the leader and the observer to be basically hostile. These remarks took two forms: (a) jokes and sarcasm (b) pointed parables. An example of the openly aggressive variety was his chronic nettling of Lash. Although the leader was able to control this common situation so that it could be analyzed, little more than lip service was given to the deductions which followed. The other members were merely annoyed by such proceedings.

An instance of Steuler's sarcasm was his rebuke of Kosmitis when the latter was struggling to work through his expectation of punishment whenever his interest in women was aroused. Steuler said, "Why don't you let us give you a beating? Then you can get a girl and be cured." Steuler's parables were far too complex for effective hostility. Though the leader often focused on his varying hostility for group discussion, Steuler would either quickly admit the group's or leader's explanation or balk, shrugging his shoulders and saying, "I don't know what you mean."

The members reacted variously to his more subtle manifestations of hostility. Ladd, Lash, and Walsh would show open aggression; Brent and Klinger would sulk; the others seemed hurt, but restrained their feelings. The latter group was temporarily forced to withdraw from active participation, fearing personal damage; but Ladd, Lash and Walsh countered vindictively.

Even at the last discussions Steuler was still compulsively posing his same basic problems in fresh disguises. The group had come to value any personal contributions that were released with emotion and were almost always taken in by Steuler's spontaneity. Frequently when another member made a moving statement, Steuler would say, "I had a strong feeling when you said that." The first member would rarely be aware that Steuler would then shift the ensuing discussion primarily to fit himself.

Steuler was occasionally disturbed by what the others brought up. For example, when the topic of perversion arose, he attempted to sidetrack it with a barrage against Victorian morality. At times like these when almost everyone was anxious, Steuler's tension-relieving diatribes were welcomed. This device often heralded the reintroduction of his old problems.

An exceptional occurrence in the 36th session bears analysis of its effect upon the group. During this hour, Steuler silently pieced together a fantasy of his childhood. At the next session, a "free" one, the recording revealed that he was euphoric. Everyone felt that he had discovered something which escaped them, and logically they supposed that it would benefit them if he would convey it. Forced by the group to explain his euphoria, he finally said, "A baby comes from a worm left in the vagina. I used to think a penis was a worm . . . that's all." They stared at him incredulously; at first annoyed, they became gradually hostile. Ladd, for example, said, "Son, I grew up 20 years ago. If that's what you're happy about, you'll never get out of the hospital." Their hostility was soon transferred to the leader in their attempts for clarification since Steuler persisted in his teasing secrecy.

It appeared that every member of the group had harbored the illusion that a magic revelation would be the panacea to his troubles. But as Steuler's behavior proved to be essentially unaltered, they were all disillusioned. Moreover, the group had never wholly believed the importance of their earliest years upon their current problems. Now they were stunned into accepting that each of them would have to reconstruct his own mosaic of experiences in order to get the most from the therapy.

The effect of these influences on the group affect was shown in the paucity of productive contributions in the next few sessions. When Steuler's euphoria dissipated, he was again in the remaining sessions able to exploit the group as he had in the past. In the additional nine months of his individual therapy which totaled 215 hours, Steuler occasionally referred to his group experiences in his free associations and gained understanding into the role he played there as everywhere. When discharged he was no longer compelled either to lose things or to drink excessively. He still had some fear of his aggression but was able to return to a university.

Ladd's Group Experiences

Ladd's approach to the group situation was unique in the candor with which he presented his experiences and in his apparent indifference to their significance. Self-disparaging, the effects of his disclosures upon the others are given in their analyses. For himself these admissions accomplished the following purposes: (a) self-protection (b) achieving an open discussion of these topics (c) maintaining a progressive pace.

The protective aspects of Ladd's remarks lay in his presumption that in volunteering them he was relieved of talking further on these subjects. If the others used his material to begin a fruitful discussion, he remained unobligated. Later it was borne out that this device had nevertheless created some indebtedness to the group. Ladd always had to prove both to the group and to himself that he did not fear a discussion of any topic.

In contrast to Brent or Steuler, who deviously tried to get the others to discuss their interests, Ladd, with his outspoken manner, obtained direct information. After introducing a topic in his bold fashion, he could merely listen to the discussion and speculate on its applicability. Invariably the other members as well as the leader would attempt to gain further expression of Ladd's thinking. His pat reaction to such situations was a statement such as "I don't know what the hell it means." Rarely was Ladd pressed, for everyone considered that he had already done well. Though Ladd's tactics differed from those of the others, he also used the group selfishly.

We have noted in the patients already discussed that when traumatic material was introduced, they strove either to divert the discussion from it or to reduce its threat. Ladd, on the other hand, sought both to implement and sustain such tension. He never undermined a high level of tension. He was often out of phase with the others; for when a discussion tended toward banality, Ladd's contributions were stimulating. The leader knew that the group could not maintain the level of discussion which Ladd insisted upon. Recourse to more innocuous matters was anticipated before a further approach to the same anxiety-laden material. In this respect Ladd's efforts were detrimental. For himself, however, this primarily served to overcome his tension. But even Ladd on many occasions needed intervals of latency during which he could regroup his thoughts.

Ladd's outstanding fear of surrender of his independence to the group was keynoted when he made it clear initially that he wanted nothing from them. Not long after, when the leader asked the members how they would feel if he gave each of them five dollars, Ladd retorted, "You'd be a sucker. You don't mean a thing to me." In the 34th session when the group understood his problem, some members genuinely asserted their fondness for Ladd. He called this flattery and added, "Well, it won't last, so what!" Steuler replied, "Ladd's afraid we'll use him for our benefit only." Ladd admitted that he felt this was so and said, "Why should you be interested in me, you don't owe me anything." From this moment on, the leader and observer noticed Ladd's slowly increasing dependence upon the group collectively. He was more at ease in talking with the others, paying for their refreshments in the canteen and even accepting their favors. He was discharged six months later after 160 hours of individual therapy. Though his fear of homosexuality had been worked through, he still pursued a promiscuous sexual life. His friends commented on his less aggressive and more patient disposition. He enrolled in high school to complete his education and planned to attend college. He was being followed as an outpatient.

LASH'S GROUP EXPERIENCES

From the start Lash wanted everyone to be his pawn. He would alternate aggression and ingratiation even with the leader. No one was beneath or above his concentration. When the group ignored his sham warmth at the second meeting, Lash reacted by telling of the beatings his father had given both himself and his mother. By this debasing admission he tried to gain (a) the attention and sympathy of the group without actually becoming part of them (b) the condonation, reassurance, and sympathy of the leader (c) acceptable release of hostility toward his father. The members openly expressed their understanding of his problem, relating similar incidents of their own. When the leader did not respond as he had hoped, Lash blurted, "You remind me of my father and I'd like to take your neck and twist it!" Because the leader accepted this, Lash could find no other solution for his untenable position than to walk out.

He returned promptly for the next session and smiled sheepishly as he listened to the recording of his eruptions. This reaction continued as Klinger began the current discussion by describing Lash's attention-seeking ward behavior. Although the others openly shared Klinger's views, rather than continue to focus on Lash, they told of instances of their own childish behavior. Lash grew restless at being overlooked. A remark by Brent presented Lash with the opportunity to restate his hatred for his father. But again the others spoke of themselves. Desperately trying to gain the limelight, Lash bellowed, "Go ahead, pick me to pieces, I don't care!" This set off a heated argument between him and Steuler, which Steuler ended with—"You are all the bad fathers that any of us ever had." Lash finally accused the leader of improperly directing the discussion.

The recording of this last session silenced Lash in the next one. Steuler pointed out that his bored attitude was another way of drawing attention. During the next sessions, after the leader encouraged him, Lash seemed cooperative. The group was wary, prodding him a little, but he took it lightly. It became evident that he was trying to win over the leader. When Brent demanded that the leader do more steering, as Lash had done earlier, Lash defended the leader's position. When his craving for attention was finally frustrated, he threatened to introduce a topic which he thought might break up the group. He had wondered in a private session whether admission of his pedophiliac experiences was proper material for the group. The leader told him that the group might approach such a subject in its own time.

At the beginning of the next session Lash complained that the discussion was getting nowhere and that he might have "to throw a bomb into it." The observer noted that Lash seemed to derive satisfaction from (a) the leader's discomfiture (b) the tension and curiosity stimulated in the group (c) his center-of-stage position. The threat of the bomb was pooh-poohed by Ladd, Steuler, Walsh, and Klinger. Brent, Kosmitis, and Winkle waited nervously. When coaxing failed, the group tried to guess Lash's secret. Lash evilly eyed the leader and made such remarks as "I was told not to say this here; it might be dangerous." But when the guesses reached homosexuality and Lash sensed that his "bomb" might prove to be a dud, he announced, "Gentlemen, I'm no good. I've got to clear my conscience with the group." But rather than promoting the ignominy he sought, Lash's remarks were accepted by the group to a man. Startled and upset by this reception, Lash found himself in the identical untenable position described in the second session. This time he did not walk out; instead, he continued to degrade himself, making such comments as "I'm worthless;" "Nobody can help me;" "I might as well leave the hospital." Steuler piqued Lash further by rightly accusing him of seeking attention, and the leader silently agreed.

Lash could only leave a situation after he had found a way to make others reject him. He also employed such tactics in his individual hours with the leader, threatening to leave the group, for example, unless he was told what some dream meant.

In succeeding sessions, whenever threatening subjects arose, such as parental-son relationships, marriage, or sexuality, Lash blocked further discussion by embroiling another member, usually Steuler, into a crude, name-calling fracas. But when an innocuous-sounding topic came up, he worked it for all it was worth. If this was superseded, he demanded an explanation from the leader. The leader often referred Lash's demands to the group for evaluation. But Lash rejected this procedure and continued to press the leader for his answer. This incited group hostility and set off more time-consuming arguments. In either case an impasse occurred. This pattern of resistance persisted until he had a tonsillectomy.

Lash had requested the operation on admission, but it had been delayed by mutual consent. Then suddenly without asking the leader, he went to the clinical director and wanted it done at once. This action served to remove him from what had become a chronically unpleasant situation. The group had caught on to his tactics and could proceed in spite of him, causing him to hear disturbing ideas. The operation also served to win sympathy and attention and to retaliate for the leader's supposed lack of interest in his tonsils.

In a week Lash was back. His melodramatic suffering was easily seen through and ignored. The group was discussing Ladd's only homosexual experience. The tension was not visibly intolerable for anyone but Lash. But his manifestly painful speech precluded a shouting match. Rather than expose his trick, Lash asked to be returned to the infirmary for more treatment.

Returning after an absence of one session, his voice remarkably stronger, he demanded to be brought up to date. Walsh retorted, "If you want to know, you should have been here. The group isn't going to wait for you." Lash decided to jump on the leader who finally asked him, "Do you think this is important here?" This remark proved to be too critical. For the first time Lash felt rejected by both the group and the leader and was impelled to seek a face-saving break with all treatment. He began to condemn trivial inconveniences in his post-tonsillectomy care. There were mild sympathetic repercussions to his attack, for each patient harbored some resentment which was frequently put on the hospital. Encouraged by this, Lash pointed a finger at the leader and shouted, "*You* are my doctor, *you* are responsible. Why don't you do something about this!" Certain that the group would rally to his side, the leader asked, "If each of you were in my place, how would you answer Mr. Lash?" Even soft-spoken Kosmitis politely, but disdainfully, rebuked Lash. But when the leader became conciliatory, arguing that if they were in Lash's position they might not be satisfied with these replies, the group lost its patience with the leader. Walsh said, "You've gone a long way to help him. How much are you going to put up with?" The session was terminated by an argument between Steuler and Lash which ended with Steuler's sacrificial exit for the day. Lash left the hospital that day.

It is significant that Lash returned to the hospital within a few days, maintaining that he had erred and had profited from the group. He wished to return to the group and tried to do this by seeking out the members individually. But not one could be enlisted for his purpose. At the next session the group decided that Lash had nothing to offer them. He remained in the hospital for a short time and then resumed the same nomadic, psychopathic existence apparently with no change.

WINKLE'S GROUP EXPERIENCES

Though Winkle possessed the highest intellectual potential in the group, this could not have been deduced from his participation. Not until after the 30th session would he offer any comment unless directly asked by the leader. Even then his responses were trite and evidenced only superficial thinking. As a whole Winkle's group experiences were an education in interpersonal living. Previously he had made only the most perfunctory contacts. In the sphere of sexual practices Winkle was unbelievably naive. Whenever the discussion turned to them, especially when he was asked to air his opinions, he squirmed and flushed and said that he couldn't add anything. For him, Ladd's descriptive profanity and sexual revelations had a brutal effect.

Winkle's reticence later provoked attacks upon himself. Even Kosmitis was angered to the point of belaboring him, demanding that he express what he was thinking. Winkle then found himself in the type of situation he had tried to avoid. He dreaded being the object of both criticism and jokes. Always fearful of uttering something which might lead to these, his comments could only be banal. Moreover, if put on the spot, he feared release of his own aggression. Prior to therapy Winkle's manifest hostility was limited to rare, impetuous, verbal outbursts.

During the play-back of the recording in the 26th session, the leader thought little of resting his foot on the lower rung of Winkle's chair. As the new discussion began, Winkle accused the leader of intentionally trying to make him angry to see what would happen. Kosmitis especially, assisted by Walsh, mordantly observed that Winkle was "being violent." It appeared that Winkle had hoped to mobilize group support against the leader as others had occasionally done. As it turned out, he found himself on the defensive instead, and he did not have the temerity to continue his reproach. The group lost interest in his predicament and turned to another subject, nullifying Winkle's opportunity to release his mounting hostility to the leader.

In the next two weeks not only was Winkle's presence more noticeable, but there was also a definite increase in the externalization of his hostility. With the aid of his private hours his impulsive, erratic anger was diverted into acceptable channels. For example, he aggressively displaced Walsh as manager of the ward baseball team and argued appropriately with the umpires. At the last group session while everyone else was exhibiting satisfaction in the group accomplishments, Winkle could find no cause for their sentiments and questioned the value of the group. When he finally said he was angry with the leader, the others laughed understandingly. His discharge two weeks later, after 45 hours of individual therapy, was prompted by the financial distress of his wife. When he wrote to the leader two months later, he still marvelled at his new ability to control his wife and be more aggressive than ever before.

Brent's Group Experiences

Brent rarely appeared interested in the proceedings of the group, yet he was alert to every undercurrent. Whenever he did speak, he introduced aspects of his own hours with the second therapist, usually to see what the leader and the group would make of them. Stated impersonally with their intent masked, his remarks were often too elusive for the group to integrate into the discussion.

The expression of hostility was also a major problem for Brent. Within the group his most outspoken aspersions left his targets unnamed. When he scolded society for being "managed by a bunch of old ladies," he was actually chiding the group. Such a subterfuge never incensed anyone to the point of an open clash. Because of this the leader was unable to work with Brent's hostility. What little Brent had to tell about himself was presented ungenerously. Usually following another member's introspection, Brent's remarks would conclude rather than initiate a discussion. This also kept the group from using him as a center of comment.

At the close of the sixth session, the group indulged in a candid discussion of homosexuality. Brent said nothing then, but at the beginning of the next session, he surprised the group with a question of his own possible lure to homosexuals. With some delight he told how he spurned them without directly repelling them. When Steuler pointed out that even to acknowledge these propositions was superfluous, Brent reacted with his characteristic silence. For the next three sessions Brent pondered whether he might actually be leaving a trail for homosexuals.

The 11th meeting caused Brent's uneasiness to mount. Walsh disturbed him with the striking assertion that for himself sexual intercourse could be nothing more than masturbation. Reluctantly Brent said that this could fit him too. This coincidence worried him as he began to fear that some of Walsh's other morbidities might also be operative within him. Finally in the 13th session Ladd divulged his dream of performing fellatio upon the leader. By then Brent could no longer stomach this, and a few moments later he simply walked out of the group, out of private treatment, and out of the hospital for good. His concurrent negative transference to his own therapist had made his situation only more delicate.

Brent's departure aroused guilt which was manifest at the next session. Every man present felt that his own conduct was to some extent responsible for Brent's precipitous exit. Walsh commented, "He left too soon to be well." As he was the first loss, the group was brought closer together by their common guilt. On the other hand, each man's original doubt over the efficacy of the group to help himself was renewed.

A social report on his progress revealed that two months after leaving the hospital, he was not as ritualistic as he had been, was more considerate, stable and relaxed.

Klinger's Group Experiences

From the very first, Klinger took a mocking attitude to group therapy. Cloaking his tension, hostility, and defensiveness in a prosecuting-attorney-like manner, in every session he would prod someone with his perpetual "why did you do that?" or "why did you say that?" His provocative speech was an attempt to camouflage his profound passivity. Like Ladd he presented a virile panoply, but unlike him, Klinger did not use profanity or sensuality in describing sexual experience.

His aggressive tactics prevented others from questioning him, and because he participated often, no one at first seemed to be aware of his lack of self-disclosure. He so overdid it, however, that soon the others began to prod him. Klinger's delaying actions brought him into strife especially with Lash. Whenever a heated struggle developed, however, Klinger's hostility would take a masochistic turn. Such was his common statement to Lash: "Every time you act like a baby, I see myself."

In the sixth meeting Klinger disclosed his desire for a woman to perform fellatio upon him after his orgasm. This topic was continued in the next session when he told how the idea of cunnilinguus made him gag. At this point Lash revealed his term in a chain gang for pedophilia. Klinger maintained that this represented an illness and that Lash should not be blamed for it. Angrily he said that he would fight anyone who held this against Lash. But after Steuler wondered what consequences would result to a boy who had been masturbated, Klinger blurted, "I'd kill a man who did it to me." When the leader cautiously attempted to show him his contradiction which the rest of the group revealed they had grasped, Klinger could not see it. From this session on, his remarks diminished sharply in their frequency, and those that he did make were bland and trivial. By the 13th session matters became intolerable.

By then he could no longer continue his prosecutory stance or other gratifying habits. In addition his conflicts over perversions were now more clear to himself as well as to the others. He seemed to fear that he might not be able to withstand further disclosures, and there was no effective way the leader could protect him. In his private hours with the second therapist he had sunk into a profound ambivalent dependency which threatened him. Sensing fewer threats in his former environment, without a word to his own therapist, members of the group or the leader, Klinger abandoned the hospital situation. From time to time, his symptoms reappeared to the extent that he asked for emergency readmission. Though granted, he failed to return.

Kosmitis' Group Experiences

Everyone recognized Kosmitis' lack of animation. His utter passivity, his unwillingness to skirmish with anyone, and his amorphous attitudes under the slightest pressure made him unattractive to all. He was easily persuaded to treat the others in the canteen or talked into lending his funds. Fearful but desirous of friendships, he solved this conflict by literally buying them and so minimizing his emotional investment.

The group reacted to Kosmitis in two ways: they exploited his attempts to buy their friendships, but responsive to their mingled feelings of guilt, sympathy and pity, they were also tolerant of him. In such an atmosphere Kosmitis' contributions were lightly regarded. Many times he was a target for a member's displaced hostility. His vulnerability was exaggerated by his naive approach to his own conflicts. Though subjected to a great deal of verbal pummeling, Kosmitis rarely even feebly objected. This represented his strong masochistic orientation as well as his nearly conscious fear of a sadistic outbreak.

A large element of Kosmitis' group experiences was his vicarious pleasure in much that went on about him. When any altercation occurred, he listened to it with malevolent satisfaction. During the enthusiasm of the argument, Kosmitis could safely release some of his own hostility. Although such remarks were clearly intended to prolong the row, no one would think of turning on him. The other major need which Kosmitis gratified vicariously was his erotism. As he heard the discussions of sexual practices, his pains to seem nonchalant did not conceal his blushes, anxiety, or fleeting guilty smiles.

Like Brent he often brought into the discussions crucial material from his private hours with the second therapist, using the group for a sounding board. Unlike Brent, Kosmitis unintentionally precipitated a denunciation of his own therapist. A rather unusual series of events culminated in this attack late in the group meetings. The primary irritation was Kosmitis' mounting resistance to his own therapist. During the 35th session Kosmitis related an illustration that his therapist had used in the preceding hour. Not only did Kosmitis inadequately describe the setting of this illustration, but he actually misconstrued its intent. This aggravated his already perplexed conception of how treatment was effected. Both Walsh and Steuler quickly grasped this situation to condemn the second therapist. On the previous evening the second therapist while off duty had reported two patients from the same ward for being out of bounds. Already infected with the general ward resentment and coupled with the groups' agitation over their current inability to progress, Kosmitis' disclosure touched off their defiance. It rapidly irradiated to include the hospital, its management, and finally the group leader. At first the leader attempted to arrest their hostility by defending the integrity and actions of his colleague. Realizing that his defense was actually one of himself, the leader managed to return the group to their previous topic. The effect of this session was to provide Kosmitis with support for his own conviction that his private therapy had gone as far as it could and had become an ordeal.

During the remaining two weeks of the group sessions, his resistance to both the individual and group therapy increased. In his private hours his negativism had reached its greatest level. In the corresponding group sessions his contributions were more aggressive than they had ever been. Only in this respect was such behavior encouraging. At the last group meeting Kosmitis stated that he had come to like the group but had never been able completely to become one of them. On discharge one month later, after some 50 hours of private therapy, his obsessions had been repressed and he was much more comfortable. He did not need re-hospitalization as late as one year later.

DISCUSSION

The Economy of Combined Group and Individual Therapy

In terms of the actual hours saved per patient, the economy of combined therapy cannot be measured. Neither our own experiences nor the literature provides criteria for such an evaluation. However our experiences do suggest that the following features were economical.

1. In the hospital setting the patients frequently discussed the content or acted out the anxiety of early situations in individual therapy. The group sessions offered a place where such situations could be worked out to the advantage not only of the individual but also of the group.
2. The patients' problems and character traits were more quickly revealed to the leader in the group setting.
3. Because a patient tended to continue to repeat his socially deviant behavior in the group, more opportunities were provided to work with it.
4. The group was a controlled proving-ground for tentative solutions to personal difficulties.
5. The group provided a place to stabilize and reinforce a patient's new socially adaptive behavior.
6. As shown in the body of the paper, the group could also be uneconomical. Such things as premature explanations, traumatic disclosures, and incorrect adaptations of another member's solutions increased resistance and could delay the resolution of a conflict.

The Effects on a Group of Having its Members in Various Stages of Individual Psychotherapy

The prime consideration was the contrasting qualities of the relationship of each patient to the leader. Those patients who had just begun individual therapy quickly recognized the more intense relationships of the more advanced patients. Inferiority, jealousy, and hostility often resulted. In Lash and Winkle were found the two poles of such effects on new patients.

Lash compensated for his lack of transference by unrelenting attempts to gain the favor of both the leader and the group. Such an aggressive, outspoken patient belabored the others with his tactics. As indicated in the discussion of Lash, such a patient imperiled the development of the group. But his behavior was of therapeutic value in his private hours. On the other hand a reticent patient like Winkle did not impede the group through his insecurity. He became a mere fearful spectator. But much individual time was expended in overcoming his reaction.

The desensitization to charged topics and the general depth to which a patient had gone in his private hours were large factors in the abandon with which he delved into the group discussions. The leader's own patients always had the advantage of his immediacy and support on their own level. Whenever any member discussed a subject with candor that startled the others, reflecting his own therapy, the others would try either to throttle him or pull him down to their own level.

For the following reasons little advantage could be found in including in the group patients being individually treated by the second therapist.

1. The patients who the leader was not treating could, when they were in strong negative transference with their own therapist find in the group sessions sufficient personally acceptable reasons for leaving all treatment.

2. Patients of the second therapist who tested untimely interpretations in the group and found that the others supported their therapist were so hurt that they had to sever all treatments. When a member tested interpretations obliquely through analogy as Brent did, he was less accessible to reassurance or working through but almost equally as vulnerable. When corresponding situations arose in the leader's own patients, he was more successful in handling them.

3. The occurrence described in the section on Kosmitis, in which he provoked a group attack on his therapist could not be effectively handled by the leader chiefly because of the lack of the same transference. Such situations are more likely when the patients know both therapists and where they are necessarily subject to hospital regulations.

4. Infrequently the group interfered with the second therapist's hours with his group patients by overintensifying or dissipating anxiety as well as those means listed under ECONOMY—6. Also the necessity of communications between the two therapists became cumbersome.

5. Two kinds of transference phenomena seemed to occur in this group. The first was merely the extension of individual transference. The second was the establishment of group interaction. In the first instance the leader could continue to help his patients on the plane of individual therapy. However, he could not so help the second therapist's patients. In the group interaction the leader had no significant advantage with his own patients.

6. The observation of Schilder (7) that a patient in positive transference with the therapist feels a need to defend him against the negative transference of another patient was verified.

THE ROLE OF THE TAPE RECORDER

Only for the first few sessions did the recorder tend to inhibit the freedom of participation; after that it was taken for granted. But the members never became apathetic over the play-backs which had the following observable effects.

1. Although topical and effectual continuity tends to occur in group sessions without using a recorder, the play-backs reestablished such continuity to remarkable levels. This was valuable to those patients who were on the verge of seeing through some of their behavior. It was detrimental when the recorded material reproduced situations or facts which a patient was trying to shun. If this were true for two or more members, the succeeding session would lag. Most often the effects were favorable.

2. Every patient was more or less able to examine his behavior in the context of his relationship to the others. This enabled him to understand superficially the origin of his actions. For example, the day after Steuler walked out on his argument with Lash, he discovered his hostility actually was displaced from the leader. The play-backs had varying effects as the account in the discussion of Walsh reveals, when a recording almost precipitated a psychotic episode.

3. In the initial sessions the play-backs gratified the narcissism of every patient when each listened to his own voice or to the cleverness of his comments rather than to the content or emotion. But subsequent narcissistic listening was a defense against the implications of the discussions.

4. Walsh displayed a unique response to the play-backs. Privately he stated that many of the recordings frightened him because they tended to resurrect the feelings he had when he had heard voices.

THE ROLE OF THE "FREE" SESSIONS

Because each of these weekly sessions was recorded, they were not really "free." Their content with few exceptions was merely a repetition or at best a consolidation of previous material. In the absence of both the leader and the observer some members could more easily voice their hostility despite the presence of the microphone. But in Ladd the opposite tendency to less aggression occurred. Until "group transference" might be revealed, a "free" discussion was little more beneficial than a bull session.

WAS A GROUP FORMED

The schizoid, obsessive-compulsive, and aggressive defenses used by these patients were incongruous with a harmonious group. For any one of them to yield the defenses long since established in response to experiences or fantasies of being hurt or wishing to harm loved ones, would be a far-reaching step in his treatment. Nonetheless the goal of combined therapy in these patients was that they would relinquish some of their isolation and gratify their "social hunger" or come to grips with their ambivalent dependency. A group could not be said to exist unless there was some forfeiture of their individual narcissism or isolation. In each of these patients some such modification was essential for the development of the mutuality that is necessary to have a group. But even in the 43rd session of this group only so many promising starts or hesitant shows of interdependence had occurred.

Earlier in the sessions when the group seemed united against Lash and later when they expelled him, such action was synthetic, present only under duress. With Lash's departure the members again tended more to separateness than to unity.

In the 34th session after each member admitted being "proud" or "anxious" for Steuler "as one of the group" when he played a violin solo the previous evening before several hundred patients, there were still noticeable reservations in their surrender to the group entity. Under pressure from both Steuler and the leader to verbalize their feelings, the group's sincere-sounding declamations were really venal.

Only when the group vouched to help Ladd and make him "one of us" did the members relinquish their fear of each other.

SUMMARY

Using a diametrical scheme for analyzing the reactions of a member of a group to the group, a study of combined group and individual therapy is reported in detail with patients for whom group therapy alone would be contraindicated. The economy of the procedures described was most noteworthy in those patients who were given preliminary individual therapy and in those for whom the group leader was also the individual therapist. The unusual effects of playing back recordings of each group session are discussed.

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THE ADJUNCTIVE USE OF AN INTRAVENOUS AMPHETAMINE DERIVATIVE IN PSYCHOTHERAPY*

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When reaching a plateau or a resistance during the psychodynamic treatment of the average psychoneurotic individual, a time-consuming, patient attitude on the part of the psychiatrist may or may not eventually bring forth favorable results. The very nature of the repressed emotional material with its complicated defensive systems makes the conventional methods appear unsatisfactory.

An ideal situation would result if there were available agents with a selective and predictable activity on the central nervous system. Even if the exact mode of the emotional process remains an unknown entity, an empirical pharmacodynamic approach may eventually lead to rather circumscribed reaction in the central nervous system. This, of course, would facilitate psychotherapy. An artificial irritation of the psyche by an agent reaching it via the blood stream will, in the suitable individual, create a set of reactions which will differ markedly from the ordinary pattern. Although not commanding a selective response an intravenously administered amphetamine (Methedrine) was found by the author as the most suitable in this category. Because of its ease of administration, the more dramatic response and comparative lack of complications, it was deemed superior to the other adjunctive agents (anesthetics, hypnotics, narcotics, Mescalin, d-lysergic acid, carbon dioxide, oxygen in high or low concentration, chemicals affecting the vegatative nervous system).

Simon and Taube (5) used intravenous Methedrine in 5 patients reporting increased talkativeness and emotional outbursts. Delay et al. described 4 patients who responded favorably to intravenous Methedrine.

Levine et al. (2) studied 75 patients. Despite the striking psychophysiologic effects no gross changes in the EEG were noted. Methedrine produced an emotionally charged free flow of material which included painful memories, traumatic experiences, intimate personal fantasies, and delusional ideas. Delay (1), in another report, noted violent outbursts of excitement and euphoria in manic states, agitation in depressive states. Catatonic features in schizophrenics were intensified. Methedrine also increased the number of responses in the Rorschach test and brought out the schizophrenic nature of these patients. Shorvon

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* This study was supported by a grant from Burroughs Wellcome & Company, (U.S.A.) Inc.

et al. (4), used Methedrine to facilitate emotional release in a group of patients suffering with psychosomatic skin ailments. Rudolf (3) reported improvement of depression in 35 out of 42 cases treated with intravenous Methedrine.

This paper represents the writer's experience with 72 patients who received a total of 162 injections. No attempt was made to select the patients for this study. The larger section was taken from a psychiatric practice. The individuals were in various stages of psychotherapy. The author uses an eclectic, active therapy with the emphasis on short term; the sessions range from one to four times weekly; the methods used are adapted to the needs of the patients. A smaller section came from a general practice; this group constitutes part of a research project for determining the feasibility of applying psychiatric principles to the treatment of patients seen by the general medical practitioner.

METHOD

An intravenous injection of 20 mg. of Methedrine contained in 2 cc. of an aqueous solution was administered within three to four seconds in the early morning hours. This was followed by an interview lasting from 20 to 60 minutes. Then the patient was placed in a separate room and told to write anything which came to his mind. This would take from one to five hours. Instruction were given to take a barbiturate (the author used tuinal gr.iss) at 9:00 P.M. and to repeat the same dose at 11:00 P.M. if not sleepy. A hearty breakfast was suggested to the patients since they would not experience hunger for the rest of the day. They were told that the object of the injection was to facilitate expressing forgotten material. Some patients were somewhat reluctant to submit to this procedure because at the time of this study narcotics and narcotic addiction figured largely in the daily newspapers and the death of a prominent movie star following a barbiturate injection had received wide publicity. They were reassured that they were receiving an enzyme, to use a more euphemistic term, which keeps one wide awake. This, by the way, is not too far-fetched as it may point to the possible action of amphetamine on the ganglionic cells. The effect could be caused by an increased oxygen intake resulting from either an increased supply or a better utilization. Nearly all patients, as will be explained later, exhibited signs of hyperventilation.

EFFECT

Following the rapid intravenous injection of Methedrine symptoms will become noticeable within about 60 seconds. They vary considerably from patient to patient. As a rule, the richer the symptomatology, the more effective from a psychologic viewpoint does Methedrine become.

The subsequently described effects do not appear constantly and are named in the frequency of their incidence.

1. One of the first signs to appear is moderate to severe hyperpnea. Characteristic remarks are: "I have no trouble breathing"; "I never knew breathing could be so easy"; "I enjoy breathing," etc.

2. Cardiovascular changes: Sensation of blood rushing to the head, flushing of the face, tingling in all the extremities, more so in the upper, particularly hand and forearm; awareness of the heartbeat which, however, will not elicit anxiety even in cardiac neurotics; the heartbeat is described as more forceful.

The behavior of the blood pressure follows a reasonably predictable pattern. There is invariably an initial rise in the systolic pressure of from 20-70 mm. But subsequently, in certain types of individuals, particularly those who under the influence of the Methedrine become capable of expressing repressed hostile material, there is a drop to the original values, occasionally even below that figure. This will be described in greater detail in a separate paragraph.

3. Muscular system: There is a combined feeling of strength and relaxation particularly in the severely inhibited individual. The disappearance of psychogenic muscle spasms such as low backache, pains in the neck and shoulder, etc., is quite dramatic.

4. Sensory organs: An increase in the acuity of all senses is noticed. A previously semidark room will appear brighter; hearing is keener; faint odors become noticeable; there is awareness of skin sensations.

5. Head: Circumoral contraction best described as puckering of the lips; dryness of mouth, nasal passages open up in the presence of not too severe secretory disturbances (so-called colds clear up almost immediately); headache may become intense but disappears proportionately as the patient verbalizes material ordinarily unacceptable to him.

6. Psychologic reactions run the gamut from no reaction at all to delirious, hypomanic behavior and will be described in more detail later.

The patients in this study were grouped on the basis of the psychologic pattern they presented. Although there was considerable overlapping, an attempt at classification was nevertheless made in order to permit their reactions to Methedrine to be predictable. If certain abnormal psychologic patterns are not mentioned, it is simply due to the fact that the patient material was unselected.

Comment

The psychologic responses to intravenous Methedrine ranged over a considerable latitude. The conclusions drawn are applicable only to the presented patient material and may or may not be statistically valid. Only a more extensive accumulation of data could supply scientifically satisfactory answers. Nevertheless, the personal impressions permit certain conclusions.

The most characteristic reaction is the relaxing of both the defensive and inhibitory mechanisms. This however, seems to cut across the conventional types of classification since it can be seen from Table I that 29 out of a total of 72 patients exhibiting maximum reactions are found in nearly all the categories. A careful examination of the dynamics of these individuals reveals an overwhelmingly inhibitory pattern throughout their growth period. A parental display of such varied attitudes as irresponsible psychopathy, vicious sadism, unceasingly prohibitive stand, smothering overprotection, etc., will modify a childs reactive pattern in a definite manner. Rather than react to a provocative life situation in a way characteristic of all mammalian behavior, inhibitory impulses prevent any overt manifestation of emotionalism adequate to the given situation.

Other factors, both genetic and environmental, provide added material in sufficient quantity to permit the use of the conventional classifications.

Contrary to the accepted widespread belief that the amphetamines create a feeling of euphoria, only 37 per cent of all the patients experienced an outspoken sensation of well-being. Here, too, the observation was made that the greater the inhibition, the more likely is euphoria to set in. Only a few exceptions to this rule were found. The same criteria with a few reservations apply also to both the quantity and quality of verbalization and written material.

The most severe reaction was encountered in a 37 year old former schoolteacher who had been suffering with a paranoid schizophrenia of 13 years' duration. After a series of insulin shock treatments in the early part of her illness the patient was returned home where her mother had been taking care of her. Lately she had been shouting insults from the windows and for that reason she was sent to the psychiatrist's office. After a few preliminary sessions during which a limited rapport was established she received intravenous Methedrine. Almost immediately she let loose with an unending flow of accusations at the top of her voice. There was logical progression to her trend of thinking, no delusional material—in contrast to her earlier visits—was produced. After 45 minutes of uninterrupted speech she calmed down somewhat. No attempt at sedation was made as it was felt that the cathartic effect might prove beneficial. She remained quiet for about ten days but the intravenous medication could not be repeated

TABLE I.

	Number of Cases	*Emotional Reaction*			*Euphoria*			*Verbalization*			*Written Production*			*Dynamic Material Uncovered*			*Influence on Progress*		
		++	+	–	++	+	–	++	+	–	++	+	–	++	+	–	++	+	–
A. Poorly organized, inadequate neurotic personality																			
1. very immature	8	4	4	0	3	2	3	1	7	0	0	8	0	0	4	4	0	2	6
2. mod. immature	10	2	7	1	3	5	2	4	5	1	0	9	1	1	7	2	0	8	2
B. Rigidly constructed personality with,																			
1. Obs.-comp. features	8	3	5	0	4	2	2	3	5	0	6	2	0	3	5	0	3	4	1
2. neurotic preoccupations	15	8	7	0	10	2	3	9	6	1	11	4	0	5	10	0	4	11	0
3. depressive swings	6	3	3	0	3	1	2	3	3	0	2	4	0	3	3	0	0	4	2
C. Psychopathic deviant with neurotic preoccupations	3	0	1	2	0	1	2	1	2	0	1	2	0	0	0	3	0	1	2
D. Schizoid withdrawal with																			
1. obs.-comp. features	4	1	2	1	0	2	2	1	2	1	3	1	0	1	2	1	0	3	1
2. neurotic preoccupations	9	3	5	1	0	5	4	3	6	0	4	3	2	3	4	2	1	7	1
E. Anxiety neurosis	4	3	1	0	4	0	0	3	1	0	2	2	0	3	1	0	2	2	0
F. Environmental stress greater than individual's capacity	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1
G. Homosexual with obsessive-comp. features	1	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0
H. Paranoid schizophrenia	2	1	0	1	0	0	2	1	0	1	0	0	2	0	2	0	0	0	2
I. Psychomotor epilepsy with obs.-comp. features	1	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	1
TOTAL	72	29	37	6	27	22	23	30	39	4	31	36	5	19	41	12	10	43	19

because of the objection of her relatives. To them it was too frightful an experience and hospitalization for further treatment was not permitted by her mother.

Another paranoid schizophrenic, a 38 year old housewife who had been ill for ten years, had undergone several series of ECT and insulin shock treatment and was discharged into the custody of her family as improved, and then seen by the author. Under a modified supportive treatment she improved sufficiently to make a better contact with reality. Her reaction to Methedrine was disappointing; there were some physical manifestations which she commented on, some increased verbalizations, a greater alertness. But these effects wore off in about thirty minutes. Her comment afterward: "I don't like this injection. It makes my eyes stare."

Only 5 patients had a moderately severe delirious reaction lasting from five to 20 minutes. They were not confined to any single diagnostic category. But they had one characteristic in common. They were all males. The mother dominated the picture either because of the father's desertion or his ineffectiveness. One patient's reaction, which is representative of this group, is given here in detail.

Sixty seconds following the injection the patient became restless, first moving his legs, then flailing his arms; he had moderate hypernea with aerophagia; puckering of lips pronounced; moaning for about 30 seconds then "I want my mother's breasts. I want her." Patient holding his face between his hands rubbing the skin rather hard and moaning, then unintelligible sounds. Rapport with the psychiatrist could be established but was quickly abandoned. Six minutes later references to childhood experiences (forgotten material) in a rapid fire speech. Patient notices the quick flow of thoughts; begins to enjoy the situation. Fourteen minutes later experiences strong sexual urge but he feels he can control it. Twenty minutes later begins to produce relevant dynamic material such as recognizing that his unreasonably hostile behavior toward his mother was hiding his strong longings for her; deals with his girl friends in the same manner as with his mother; pity for his father, but also realizes the deep contempt he had for him, etc. All this material was subsequently written down by the patient. Three hours later he felt exhausted but somewhat elated.

Individuals who suffered from the classical symptoms of anxiety neurosis fared well as a group. Euphoria was experienced almost immediately expressing itself in a feeling of freedom of symptoms. They relished particularly the greater awareness and the sharpness of their senses. It was as if the anxiety acted as a damper on their mental processes. They related readily and profusely any kind of repressed material without any hesitation. "I lost the shackles of my fears," as one patient expressed it. The dynamic insight into the symbolism of their symptoms was remarkable. Typical examples:

(a) A 33 year old salesman had among other fears severe anxiety when driving his car. He would hold the wheel stiffly and would keep his eyes glued forward and not permit himself to look to either side. Under Methedrine he realized that this behavior prevented him from seeing women on either sidewalk. Also he was able to explain his uneasiness in the presence of rocky formations along the roads. He remembered the stories of his maternal grandmother who died when he was six years old. She used to relate to him all the details of the death of her husband who plunged down a cliff while pursuing his pastime of mountain climbing.

(b) A 35 year old housewife suffered, among other fears, from anxiety surrounding any kind of illness, particularly in her two children. She recalled how her mother used to tell her when she was about four or five years old about a brother who had died three years before she was born. Subsequently, her mother had stopped mentioning him. The patient remembered quite vividly her mother's tears and how she shared in her sorrow. She then ventured the opinion that the onset of her anxiety was related to her older son's fifth birthday. He had reached the age at which her brother had passed away.

(c) A 30 year old engineer had fears severe enough to prevent him from traveling beyond the confines of his borough. It began about two years after his marriage when he had to drive over the Bronx-Whitestone Bridge. He had a feeling of mounting anxiety until he was safely over the highest point of the bridge. Under Methedrine he was able to see the similarity between his sexual difficulty (premature ejaculation) and the crossing of the bridge. Both took about two and one-half minutes. He would marshall all his will power, but to no avail, to hold out longer. He realized also that traveling meant adult ways of behavior. Since he was such an abysmal failure as a man he had no right to travel.

Rigidly organized individuals reacted almost equally as favorable as the previous group. Their emotional reaction under the influence of Methedrine was strong and both verbalization and written material was as significant though somewhat less colorful, as in the anxiety-neurosis group. Also the incidence and intensity of euphoria was less pronounced. Two patients in this group suffered with a moderately severe speech defect which in one patient disappeared completely, in the other, to a great extent for several hours. Subsequently both noticed a considerable improvement of this difficulty. The author emphasized to them repeatedly that if they could speak well under the influence of the injection they surely could perform in the same fashion without it. This form of suggestion was adopted rather frequently and was readily accepted by the patients.

Patients with schizoid behavior pattern exhibited only mild or no euphoria at all. Those with neurotic preoccupation displayed a fairly good insight into the dynamics of their emotional disturbances but not significantly greater than without the influence of the drug.

The poorly organized, inadequate personalities in this study came for psychiatric treatment at the insistence of someone close to them who could no longer bear their lack of responsibility. In some cases they had been through innumerable physical check-ups and unsuccessful therapeutic measures and as a last resort psychiatric treatment was suggested. Their motivation to undergo such a procedure was poor. The administration of Methedrine created a definite, though not decisive, improvement in the rapport. This was especially noticed in the cases where euphoria was pronounced. These were the patients who began to admit that they felt not as hopeless as in the beginning.

In the psychopathic group there was a characteristic absence of a decided reaction to Methedrine. The verbalization followed a purely intellectual course with no deep insight. Euphoria was slight or absent.

Other characteristic reactions to Methedrine were the appearance of somatic symptoms. The outstanding reaction was sharply localized headaches. Less frequent were: choking sensation in the throat, cramping in abdomen, pains in the extremities. They could be compared to hysterical conversions. The symptoms disappeared in the same degree as the patients were able to verbalize the unacceptable trends in thinking.

Repressed individuals who also had various degrees of elevation of the systolic blood pressure showed characteristic reactions. After an initial rise the pressure would be maintained at a high level only to drop immediately when the focal hostility would be aired. This represented an almost experimental situation. When anger appeared and the pressure dropped, a minimizing attitude on the part of the psychiatrist would almost instantaneously raise the systolic pressure. On the other hand, a high value was amenable to a lowering by encouraging or provoking the patient into expressing his resentments.

The important question whether or not patients undergoing psychodynamic treatment benefit in the long run by the administration of Methedrine was given careful consideration. Does the psychiatrist gain better understanding of the disease process only, or is there a definite step forward towards the recovery of the individual? The author's figures indicate a definite improvement in 14 per cent, some betterment in 59 per cent, no demonstrable change in 27 per cent. Here a significant observation was made. There was no correlation between the amount of insight gained, euphoria, and intensity of emotional reaction, on the one hand, and favorable progress on the other.

One case in particular demonstrates this fact, illustrating the many unsolved puzzles of emotional behavior. A 23 year old male student of liberal arts presented the following problems: Difficulties with his studies, inability to concentrate, compulsions to double-check everything he was doing, doubting his ability to distinguish between right and wrong, feeling of physical inadequacy, etc. He was seen in 21 sessions during which a fairly good rapport was established, following which Methedrine was administered. Up to this point the patient had gained a satisfactory insight into his character-difficulties. However, there were no noticeable effects of psychotherapy, although he claimed that he felt better and more at ease. He maintained the same stiff posture, overly polite and self-effacing attitude. There was no distinct reaction to Methedrine. His pulse was beating more rapidly and subjectively he noticed that his voice was deeper and the flow of words somewhat faster. His verbalizations ran along the same level as in his previous sessions, his written record represented a summary of facts with few emotional overtones. In the next session, the patient appeared jovial, he crossed his legs and balanced the chair on its back legs. This and other attitudes represented a distinct deviation from his previous behavior pattern. He could not offer any satisfactory explanation; he looked upon the injection as an interesting experience. "It sort of makes your head clear," was the only pertinent comment. Subsequently he made rapid progress in all his difficulties and was discharged after a total of 42 sessions.

With regard to ultimate improvement the anxiety neurotics responded better than the other groups in this study. The ability to demonstrate to themselves the symbolic meaning of their fears gave these patients a sense of power which carried over into the postinjection period. Then they would deliberately provoke situations which ordinarily would create anxiety. One patient, who had been under analysis for 35 sessions, began to develop good insight, particularly into the relationship between his sexual difficulties and his cardiac phobia. Nevertheless, he was still careful not to overexert himself. Four hours after the injection he ran up the stairs of his apartment building to prove to himself that he no longer was afraid. It must be added though that several weeks later he had a moderately severe relapse precipitated by a not unjustified feeling of jealousy toward his wife.

Almost as marked was the response in the group characterized by rigid personality construction. These patients were capable of utilizing the newly gained insight to effect a lessening of their inhibition. Individuals in whom depressive features were more outstanding did not do so well. After a period of elation came a let-down which usually was more severe than the previous depression. Thoughts of suicide which hitherto had not been expressed were voiced freely. It was, as one patient expressed it, as if he had to pay with more depression for the moments of this wonderful feeling of freedom from worry. The other groups did not show any significant change in their course which would have been attributed to Methedrine. Poorest results in this group were in the psychopaths.

The reaction to a repetition of an injection of Methedrine was uniform with all the patients. Each subsequent administration had a lesser effect in all areas. It was the impression of the author that this was due to progress. The earlier in therapy Methedrine was given, the more pronounced the reaction. In no case was there evidence of habituation. When a request for another injection was made it was due to the fact that a feeling of depression was encountered for which no satisfactory explanation was found by the patient. He thus hoped to gain the necessary insight. Apparently there seems to be no advantage to repeat the injection beyond two to three times, the minimum interval for an adequate effect being about six weeks.

Ten patients who previously had received one or two injections of Methedrine and had shown an adequate reaction were subsequently given benzedrine intravenously. With one exception they noticed a difference. It appears that the action of Methedrine is capable of bringing out more sharply defined emotional sensations, whereas benzedrine provokes a more diffuse and not so conscious emotional reaction.

The author used Methedrine also following the use of intravenous sodium pentothal. Usually 20-40 mg. of the former drug was capable of awakening the patients and here too they were encouraged to write anything that would cross their mind. Much of the material that ordinarily would have been vague or unconscious came to the surface in this manner.

CONTROLS

Twenty patients were selected to rule out the possibility of suggestibility. The first 10 patients had received intravenous Methedrine from four to eight weeks previously. They were given 1 cc. of sterile saline intravenously and at the same time were told that this was a repetition of the previous injection. Invariably the reply was that this must be something different since no effect was felt, with the exception of 2 patients who felt somewhat peculiar "all over." It was then explained to them that most likely habituation had taken place and therefore a double dose would have to be given. The second injection containing Methedrine was then administered. There was an almost immediate recognition of the previous effect.

Ten other patients who had not received any previous medication from the author were instructed in the same fashion as if they were to have intravenous Methedrine. They also were told what effects to expect. Eight out of the 10 patients made efforts to look for the various sensations but with little success. In none of the cases of the second group, even in the more suggestible individuals, was there a reaction comparable to that of Methedrine.

Follow-up studies on patients six months to one year after the administration of 'Methedrine' revealed that final improvement depended strictly upon psychotherapy. Methedrine, though valuable as an adjunct, cannot replace the dynamic setting of the physician-patient relationship.

The Use of Methedrine without Psychotherapy

In a separate study an attempt was made to determine the effect of intravenous Methedrine on patients who neither had previous psychotherapy nor had done any reading in lay-publications concerning psychologic matters. The latter condition was to serve as a control to determine the genuineness of the patients verbalizations. Some of the productions of individuals under psychotherapy who had received intravenous Methedrine read almost like classical textbook examples of clinical psychopathology.* One can justly wonder about the extent to which newly acquired knowledge is woven into the patients' original difficulties.

Fourteen individuals were selected, only one of whom had finished high school. They were housewives, three factory workers, two grocery clerks, and one unemployed—10 females and 4 males. The reason for their visiting the doctor whom they assumed to be a general practitioner were in the order of frequency: "not feeling well, being run down"; "there must be something wrong with me"; "I have low blood-pressure; headaches"; "I want a check-up," etc. The physical symptoms presented were vague and not referable to any organic system. The histories obtained invariably pointed to environmental stresses beyond their capacity of coping. The procedure of intravenous administration of Methedrine followed the same rules as previously indicated, except that the patients were told that this injection raises the blood pressure; alternate patients were informed that they would be able to get a great deal off their chests since it would make them talk; that they would experience a variety of emotions, and that no hunger would be felt for the rest of the day. Characteristically, 3 patients who would fall in the same category refused the injection.

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* The written material obtained in this and subsequent studies will be incorporated in a monograph.

The immediate reaction was one of bewilderment, followed by moderately severe emotional outbursts, mostly crying. The flow of speech was free and rapid and considered an enjoyable experience. "I have not talked as much in my whole life"; "I feel I can't stop talking"; "the words are just coming out of my mouth," etc. They were clearly able to see how they preferred to suffer in silence rather than to speak up. They recognized their rationalizations, such as the desire to keep peace, not to offend their mates, etc., as falsehoods. Spontaneous recollections from childhood were brought out. In a few individuals there was a remarkable insight. All of the patients had a feeling of well-being on leaving the office. The subsequent course was characterized by the interplay between the patients and the offending individuals in their environment. Invariably phone calls from relatives would come in demanding to know what the author had done to the patient. Long explanations were necessary and not always convincing.

When seen a few days later the patients discussed their experiences in great detail without mentioning their physical ailments. Those that could accept the necessity of standing up for their rights and were seen in a few more visits, during which directives along the same lines were given, noticed a diminution of their somatic complaints. The others either dropped away, hoping to find a new doctor or faith healer who would give them the magic formula or when returning after a while demanded a different type of treatment. For these reasons one cannot advocate too freely the use of intravenous Methedrine in general practice. But if the physician could invite the co-operation of the family, and if he is willing to show a benevolent understanding of the patient's difficulties and to follow it up with simple common sense suggestions, a large number of these individuals could be helped.

SUMMARY

1. The use of intravenous Methedrine is a valuable addition to the psychiatrist's armamentarium. The comparative freedom from any dangerous complications permits its general application.

2. In the appropriately selected individual verbalizaton of otherwise unacceptable material promotes a better understanding of his difficul-

ties. The cathartic effect and the newly gained insight enhance the chances of a faster recovery.

3. The best response was found in the more severely inhibited individuals, irrespective of the diagnostic label.

4. With adequate preparations and certain precautions intravenous Methedrine could also be used in the general practice of medicine.

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THE CLINICAL SIGNIFICANCE OF PTOSIS WITH SPECIAL REFERENCE TO PTOSIS OF LATE ONSET *

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Ptosis is a pathologic phenomenon of frequent occurrence in neurology. Essentially objective in character, ptosis is in most instances easy to diagnose; however, neurologists, ophthalmologists, and internists know that paralysis of the *palpebrae superiores* may be encountered in a wide variety of conditions. In other words, the mere observation of a drooping eyelid invites one to recapitulate all of the nervous pathways, from cortex to levators of the eyelids, looking at the same time for sympathetic involvements, pathology of the neighboring structures and dysfunctions of metabolic or muscular origin.

Even if it should be taken for granted that we are dealing with structures that are already familiar to the average clinician, one can still speculate considerably on theoretical or ill-established knowledge if not on certain functional aspects that have not as yet received satisfactory explanations. Some time ago I discovered that textbooks on neurology and neuro-ophthalmology had not synthesized ptosis under one heading, and, although they frequently referred to it in different chapters, one had to do his own rearrangement of the scattered information in order to grasp, in a tedious and unsatisfactory way, the full significance of this fine and precise neurologic sign. I have tried to achieve such a synthesis for you.

Ptosis is either congenital or acquired. The former belongs to the field of ophthalmology and is not frequent in comparison with the latter. It is often hereditary and familial. It is frequently associated with other oculomotor disturbances. Usually bilateral, congenital ptosis may involve only one eyelid.

Acquired ptosis is overwhelmingly more frequent than the congenital variety. It is also designated as *paralytic* ptosis. It may be mistaken for congenital ptosis if it dates back to early infancy. In such instances one should look carefully for obstetrical trauma, usually provoked by forceps.

Acquired ptosis can be observed as an isolated sign but more commonly it is the accompanying witness of other clinical features.

The Horner syndrome is a pseudoptosis which is not due to paralysis of the oculomotor but to that of the small tarsal muscle. The syndrome also includes miosis, due to paralysis of the dilator of the pupil; enophthalmos, due to paralysis of the orbital muscle of Müller; anhidrosis and vasodilatation of the ipsilateral face. The whole picture is the result of paralysis of the sympathetic.

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* Read at the Toronto Meeting of the Canadian Neurological Society. June 1951. From the Department of Neurology, Hôtel-Dieu Hospital, Montreal.

Hysterical pseudoptosis has been well described by Charcot and Parinaud. The eyelid is drooping, usually on one side only, the head is tilted backward as in true ptosis, and when the patient tries to open his eye he contracts his frontal muscle vigorously. The element of differentiation with true ptosis is the lowering of the eyebrow which is always elevated in paralytic ptosis.

Blepharospasm is a crude caricature of ptosis. It belongs to the chapter on involuntary movements, whether functional or organic in origin.

Gerlier's vertigo, or paralyzing vertigo, is a symptom-complex of rare occurrence as the only known observations of its manifestations were collected in Switzerland and Japan. It is ushered in by a bilateral ptosis which persists during the entire attack and which is the last sign to disappear. Other characteristics of the syndrome are its occurrence during summer, sudden vertigo, pain in the neck and in the back, amblyopia, muscular weakness, and the short duration of the attack. Cause and treatment are unknown.

Lesions of the orbit often cause ptosis as an isolated manifestation. Among such lesions one should include tumors, abscesses, traumata of all descriptions, vascular abnormalities, and inflammations of all origins. Neighboring localizations of various etiologies, but chiefly inflammatory and neoplastic, may paralyze the levators, usually with other muscular structures; such neighboring localizations are frontal, ethmoidal, and sphenoidal sinusites, traumata, pituitary involvements, venous thromboses, aneurysms, and the meningitides.

Infections originating far from the orbit or the adjacent cavities may, in the course of their evolution, give rise to ptosis or semi-ptosis. I happened to examine such a case in the fall of 1947:

A young woman, aged 23, presented hyperthermia, generalized adenopathy, precordial dyscomfort, and frequent bouts of pain in one eye or the other during which the eyelid drooped for several hours. I never could explain that phenomenon of alternating and transient ptosis which was not accompanied by miosis or anisocoria. To make matters a little more intricate, the patient had a marked permanent enophthalmos on the right side.

At autopsy, parietal thrombo-endocarditis of the left ventricle, bronchopneumonia, pyelonephritis and small cerebral embolisms were found.

A lymph-node biopsy made shortly before death revealed nothing of great significance but irritative follicular hyperplasia.

The pathogenesis of such a ptosis opened the door to speculation that has been more academic than practical. The most plausible explanation was found to be that of an infectious neuropathy of some of the terminal branches of the sympathetic and oculomotor. At all events, cases of that sort serve the purpose of establishing isolated lesions of the terminal branches of motor rami that already are minute.

All general practitioners know that diabetes is the causative factor of some isolated and transient pareses of the eyelids.

At the early stages of tabes one can elicit a true ptosis which is usually bilateral and which gradually recedes. The pupillary changes are then already present. In the years when tabes was more frequent, ptosis used to make one suspect tabes at once. The Hutchinson's mask was originally described after the typical attitude of tabes sufferers of old days; later, it was generalized to ophthalmoplegias of all origins. The same remarks apply to general paralysis and syphilis of the central nervous system as both may injure the entire pathway of the levators. As the French used to stress: *La syphilis aime la troisième paire.* The third cranial nerve appeals to syphilis, which in turn, seems decidedly *third-nerve-tropic.*

Blepharochalasis is a lengthening of the upper lid caused by relaxation of the adjacent skin after eyelid inflammatory lesions of long duration. Such an aggregation of conditions creates a ptosis-like occlusion of the eyes which should be kept in mind. The diagnosis is made after careful history-taking and the treatment is local surgery.

Herpes zoster of the trigeminal nerve is complicated by ptosis in a good percentage of cases. The lid drooping is then due, indirectly, to edema or, directly, to paresis of the levator by actual damage of the third nerve. Similarly, the same order of lesions may involve the tarsal muscle of the lid, causing pseudoptosis.

Ptosis is a frequent sign in syndromes, mostly vascular in origin, involving the cerebral peduncles. We are all familiar with Weber's syndrome or contralateral hemiplegia associated with ipsilateral paralysis of the third nerve. In such instances, the lesion of the oculomotor is incomplete because the fibers emerging from the nucleus of the third nerve have not yet united in a complete bundle; however, the fibers of the levators are usually interrupted and ptosis is a striking feature. The lesion lies in the ventral aspect of the peduncle. Should the lesion be found in the dorsal peduncular region, in the vicinity of the red nucleus and superior cerebellar peduncle, the clinical picture is that described by Benedikt, including partial or complete ipsilateral paralysis of the third nerve with ptosis, associated with contralateral ataxia, hemitremor and hemichorea. The red nucleus syndromes do not all give rise to a ptosis, and, while a posterior or dorsal lesion of that nucleus—Foix's superior syndrome of the red nucleus—does not result in ptosis, the anterior or ventral lesion—Claude's inferior syndrome of the red nucleus—is associated with the involvement of the third nerve, resulting in ptosis. In both Foix's and Claude's syndromes the cerebellar signs are contralateral.

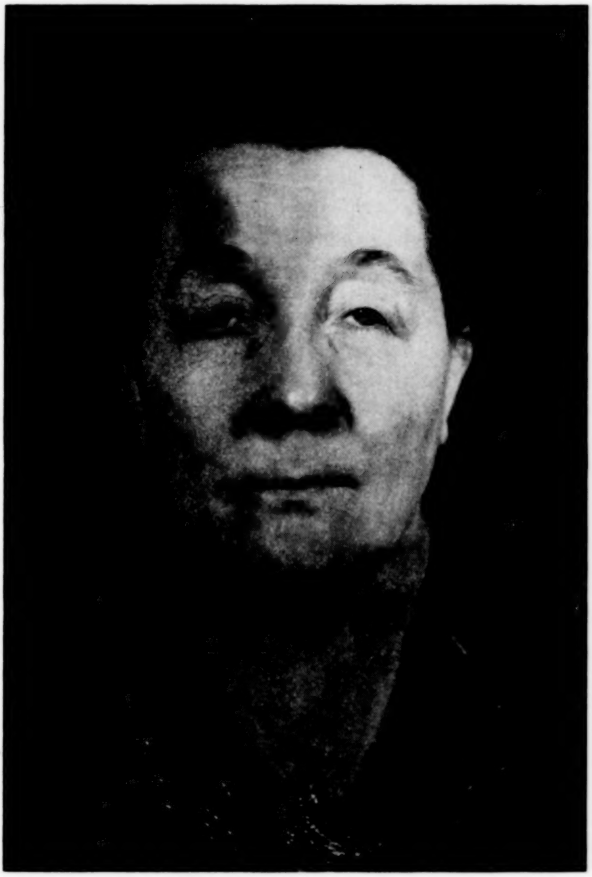

Fig. 1.—Semiptosis aspect of eyelids in blepharochalasis. Woman of 50 with chronic conjunctivitis finally healed with proper topical applications and antibiotics. Plastic surgery restored the drooping of the palpebrae superiores. (Courtesy of Dr. F. Badeaux).

Nothnagel's syndrome is a variant of the superior cerebellar peduncle syndrome and is commonly described as resulting from a pressure downward upon the superior cerebellar peduncle, resulting in cerebellar signs with ocular palsies, including a fairly constant ptosis. Nothnagel's syndrome is usually the result of a adjacent pressure while the red nucleus syndromes are due to intrapeduncular lesions.

Lesions localized in the interpeduncular space give rise to bilateral Weber's syndrome with a bilateral ptosis.

Chronic progressive nuclear ophthalmoplegia is a degenerative disease described by von Graefe, Gowers, and Hutchinson, with a slow and insidious onset. Ptosis is the first sign to appear; strabismus and diplopia follow, then the patient gradually presents the typical Hutchinson's mask of total ophthalmoplegia of the extrinsic muscles, the intrinsic musculature escaping as a rule. Von Graefe's ophthalmoplegia may be due to congenital nuclear degeneration or to some other etiology such as syphilis of the central nervous system or to some form of chronic encephalitis. It should not be confused with superior polioencephalitis hemorrhagica of Wernicke which does not affect the peduncles only but also the hypothalamus, the thalamus, and the floor of the fourth ventricle. The essential pathology consists of parenchymatous destructions and vascular proliferation. Bilateral ptosis is constant with implications of other branches of the third nerves. Hypersomnia is the rule while pyramidal spasticity of the limbs, ataxia, tremor, and signs of polyneuritis are accompanying features. Etiologically, alcoholism and avitaminosis are the most frequent factors.

Acute poliomyelitis in its brain-stem variety may occasionally involve the third nerve nuclei with ensuing ptosis.

I should not insist on myasthenia gravis as every one knows that ptosis is the signal-symptom that puts one on the track of the correct diagnosis which shall become obvious after the prostigmin test and the observation of muscular exhaustion. Myasthenia gravis is a familial and hereditary disease characterized by muscular fatiguability caused by an altered chemical process at the level of the myoneural junction.

All muscular dystrophies may affect the levators to some extent according to their predominant localization.

Ptosis is also frequently observed in the early stages of von Economo's disease. It is rarely met with in multiple sclerosis where it remains a theoretical possibility. It is of more frequent occurrence in migraine, especially so in the variety called migrainous Ophthalmoplegia or recurrent oculomotor palsy.

The Marcus Gunn phenomenon deserves a little more consideration.

It consists of a ptosis of the upper eyelid, in most instances the left one, and of its involuntary rising with the lowering of the jaw and its lateral movements. This jaw-winking syndrome is almost universally interpreted as the consequence of a congenital anomalous innervation, the fifth motor nucleus compensating for the deficiency of a partially aplastic third nerve nucleus by fibers originating in its nucleus. In many instances, the seventh and the ninth may contribute to the same extent as does classically the fifth.

Such a theory is plausible for the congenital cases but it would need a little elaboration for the acquired forms of the syndrome. It is hardly admissible that the new association pathways can be created, as it were, overnight. It is more likely that pathways already existed congenitally, which united the fibers of the levator to the nucleus of the Vth, VIIth, and IXth nerves. This is the opinion of Marcel Lefebvre (4) who adds that the action of such anastomoses would have manifested themselves at the occasion of a paralysis of the IIIrd or the VIIth nerve, thus removing the antagonistic contraction of the orbicularis and permitting the rising of the eyelid when the patient opens his mouth.

The Marcus Gunn phenomenon is far from fully explained and scattered observations appear periodically, pointing to new phases of its pathogenesis.

An isolated ptosis of strictly cortical origin is unlikely and should be exceptional. I have asked several neurosurgeons if they ever saw one and a negative answer has been unanimous; however, Landouzy and Grasset, quoted by de Lapersonne and Cantonnet (2), have observed an isolated ptosis caused by a lesion of the angular gyrus of the opposite side.

Hereditary ptosis of late onset was first described by Dutil (3) in 1892. My colleague, Roma Amyot (1), published a good review of the subject in 1948. Hereditary ptosis of late onset is also familial; it is pure in the sense that there are no other abnormalities of the eyes. The ptosis is bilateral and patients have a characteristic camel-like appearance. In some cases there is also some difficulty in swallowing. It appears after the age of 50. It seems to have a dominant hereditary character and is not sex-linked. It is believed to be caused by a muscular dystrophy of the levators of the eyelids. It is of interest that Rodin and Barkan (5) have reported a comprehensive study of the hereditary ptoses in 1935 and that they classified them under 4 headings: (a) hereditary and congenital ptosis, (b) hereditary ptosis with ophthalmoplegia externa, (c) noncongenital hereditary ptosis, and, (d) hereditary ptosis with epicanthus.

I have observed 2 cases of late ptosis that were not hereditary but were familial. They had partial ophthalmoplegia externa. One of them was a tabetic.

Joseph Q., aged 70, was admitted to the Hôtel-Dieu Hospital Oct. 27, 1949 for ptosis of both eyelids, present since his late forties and of gradual onset. The patient had also noticed some difficulty in swallowing for the past 15 years. He also said that he had had lightning pains in his legs years earlier. Family history did not reveal any similar manifestations in his ancestors, but his sister, aged 54, had heavy, drooping eyelids of six years' duration. Personal history revealed a syphilitic chancre in 1902 which was treated during one and one-half year.

Upon examination, there was the already mentioned bilateral ptosis with

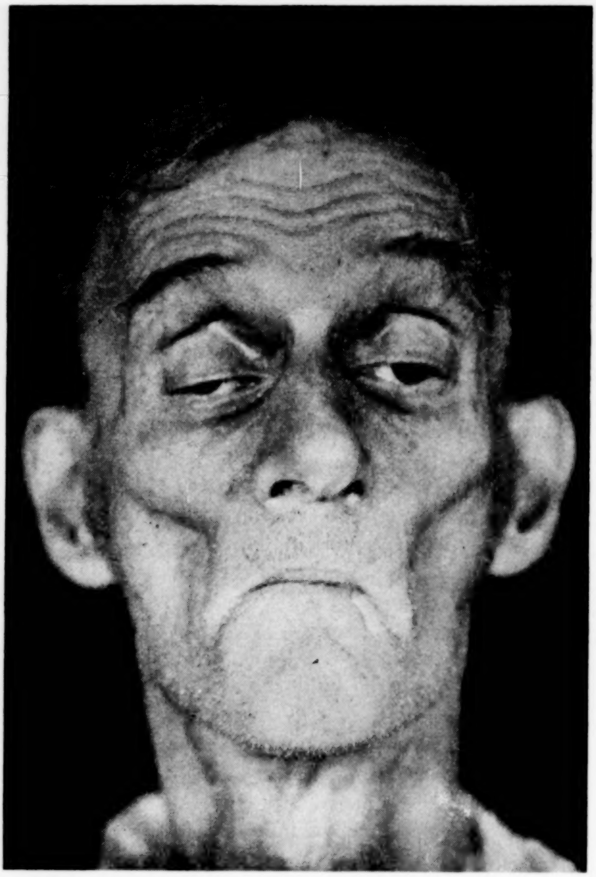

FIG. 2.—Late familial nonhereditary ptosis allegedly tabetic, age 70.

a marked paresis of eye movements in all directions. Visual acuity was fair and fundi were grossly normal. Pupils reacted sluggishly to light and distance. Knee and Achilles jerks were absent while sensation was preserved with all stimuli. Blood and spinal fluid Wassermanns were negative.

I examined his sister and found the same bilateral ptosis or semiptosis. She also had a bilateral paresis of the superior recti. Otherwise her examination was negative.

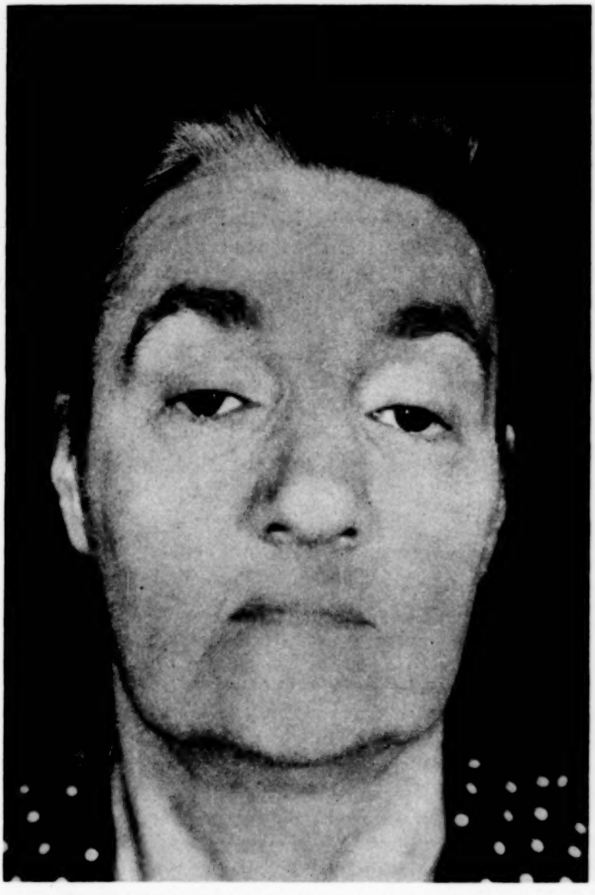

FIG. 3.—The sister, aged 51, of patient shown in Fig. 2. She developed late familial nonhereditary ptosis at the age of 47.

If those 2 cases had had ancestors with ptosis they could be classified under the second category of Rodin and Barkan but, to their knowledge, they had no such parents or ancestors. It is also possible that tabes was the responsible factor but we know that ptosis is an early and not a late sign of tabes and we know also that the sister had no history of syphilis. It is admitted that acquired types of late ptosis are seldom reported. Fusch, quoted by Dutil, presented, in 1887, 2 patients with an acquired type of ptosis of late onset without mentioning heredity as a factor.

Last month, I observed a most interesting case of ptosis with my colleague, André Parenteau. The history can be summarized as follows: Mrs. G., aged 47, but looking 15 years younger, suddenly noticed in July 1950 that her left eyelid was drooping and that she had diplopia. Her past history was uneventful and there were no similar cases in her family. All laboratory examinations were negative. Lumbar puncture findings did not throw any light on the eventual etiology. X-rays of the skull and an arteriogram were normal. On examination, she had a constant ptosis of the left eyelid and a paresis of her upper and lower left recti; she saw objects one over the other. Otherwise ocular movements were normal. Pupils and fundi were also normal. Several prostigmin tests brought a little subjective relief but it must be stated that her ptosis was constant and was present when she woke in the morning; it did not increase during the day. No other muscles were involved.

The striking features of this case are the sudden onset, the absence of aggravation, the absence of exhaustion, the absence of hereditary incidence, and the relatively late onset. Multiple sclerosis has been thought of but rejected because of the absence of remissions and of the usual introductory accompaniments. I must confess that the etiology of this case of ptosis is baffling.

Another case of ptosis of difficult classification is that of a woman of 67 who had the following summarized history:

Admitted to the Hôtel-Dieu in November 1950 for slight cardiac decompensation, Mrs. V. also presented a progressive bilateral ptosis which had begun two years previously. Upon closer examination, she was found to present also a paresis of both superior recti, a paresis of the left inferior rectus and of the right internal rectus. The intrinsic ocular musculature was normal. The condition is permanent and does not vary during the day. The prostigmin test was negative. All laboratory examinations were negative including X-rays of the orbits. An electrogram performed by Dr. D. L. Lloyd-Smith on December 7, 1950 concluded that the muscles affected could not be examined directly but that clinically a central mid-brain lesion might be considered. I should add that the ptosis was not hereditary and not familial and that the neurologic examination of the patient was otherwise negative.

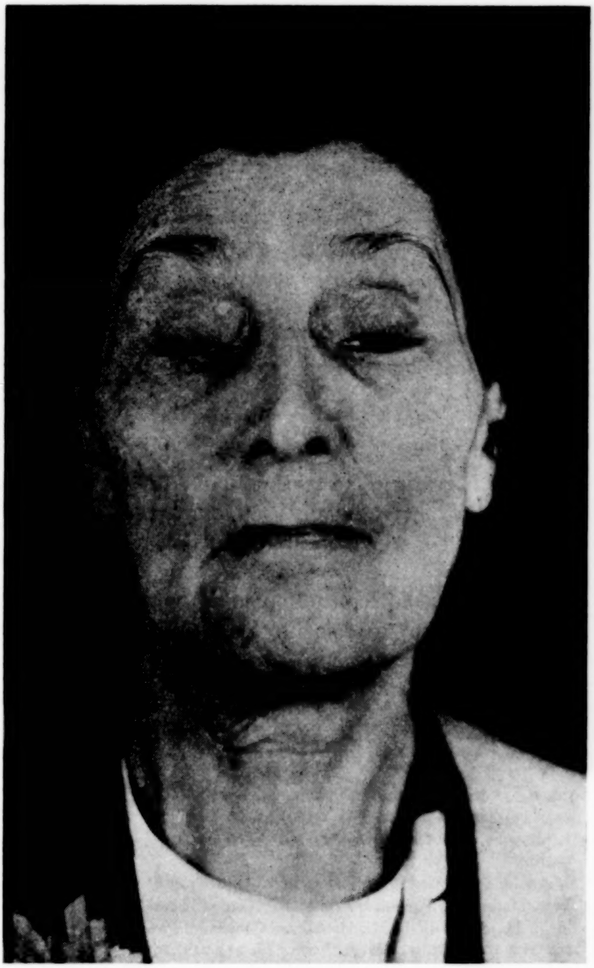

FIG. 4.—Late nonhereditary and nonfamilial ptosis of a woman age 67, with gradual onset at the age of 65.

We are dealing here with the history of an acquired bilateral ptosis of late onset that came on gradually. There is no hereditary or familial connotation. Usual etiologies are not applicable. Blepharochalasis has been ruled out. A localization and syndromic diagnosis are not difficult but it does not seem possible to point to a definite causal factor.

I have kept for the last a type of ptosis that has not, to my knowledge, been described in the literature. It may sound questionable and it may have a strong psychosomatic flavor, but Dr. Côme Cartier, a general practitioner of Conception, Quebec, claims that he has observed it frequently as an early sign of pregnancy. The expectant mother would lower her eyelids as if anticipating the holding and lulling to sleep of her future baby in her arms. This semi-ptosis is physiologic and is caused by a slight local edema which would be either emotional or metabolic in origin, or both.

I have had this unique, unpublished information from Dr. Rueben Rabinovitch who had it from Dr. Cartier. He described this new signal-sign of pregnancy to me last week at the C.M.A. Convention of Montreal between two sessions.

Analytically-minded neuropsychiatrists should accept it on its sheer symbolic value. Neurologists might frown a little but they should look for it, if only to deny it.

SUMMARY

To sum up, I have tried to review rapidly the various ptoses that we should expect to observe and discuss. Most of them are old acquaintances while some are still difficult to pin down as to their precise etiology.

Neurosurgeons should remember that ptosis offers a wide field of extrasurgical discussion; neurologists know that the behavior of the levator of the eyelids is often the cause of unexpected scientific joys, and, finally, the neuropsychiatrist must open his eyes to new symbolic significances and values.

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THE EFFECT OF A DISTRACTOR ON THE RATE OF CONDITIONING OF NORMAL SUBJECTS AND PATIENTS SUFFERING ANXIETY*

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INTRODUCTION

In 1946 Welch and Kubis (8) studied the effect of pathologic anxiety on the rate of conditioning the psychogalvanic reflex (PGR). The procedure called for the subject to read aloud nonsense syllables which appeared consecutively on a memory drum. The conditioned stimulus was one of the syllables which was paired on alternate appearances with a buzzer. The criterion of conditioning was the occurrence of three successive PGR responses to the conditioned stimulus syllable without the buzzer whose magnitude was greater than that of the response to any other syllable in the corresponding period. They found that clinically diagnosed anxiety cases conditioned significantly faster than did normals.

This has been subsequently verified by Taylor (7) who obtained more rapid conditioning of the eyelid response in individuals diagnosed as anxious on the basis of their responses to the MMPI.

Corn-Becker et al. (1) reported that the introduction of a wire-recording giving instructions to concentrate was instrumental in increasing the incidence of conditioning of sensations in normal subjects. In their experiment, one group was presented with the word "cross" on a lantern slide screen for 10 seconds, followed immediately by a slide with the word "cross" and a faint picture of a cross on it. Time intervals between pairs of slides ranged from 15 to 90 seconds. On the twelfth and sixteenth trials, the second slide did not show a picture of a cross. One subject out of 20 reported seeing a picture of a cross where there was none. A second group was given the same stimuli and in addition heard a wire-recording giving instructions to concentrate on the representations on the screen. In this group, 4 out of 20 reported having seen a cross on the critical trials. The experimenters point out that there appeared to be a trend toward increased incidence of conditioning, despite the lack of a statistically significant difference between the two groups.

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* Study from the New York Hospital and the Department of Psychiatry, Cornell University Medical College, New York, and Hunter College, The Institute for Research in Clinical and Child Psychology.

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Although the experimental technique and the responses studied in the Welch and Kubis experiment and in the Corn-Becker et al. experiment differ markedly, and the findings in the Corn-Becker experiment were not significant, it was thought that adding a distractor in the form of a wire-recording to the anxiety test situation might in some way affect the conditioning rate.

APPARATUS AND PROCEDURE

The procedure was the same as that described in the original Welch and Kubis experiment, except that the syllables were presented by means of a motion picture which allowed for a six second exposure of each syllable. Also, various wire-recordings were introduced and played throughout the experimental sessions, in the manner outlined below.

There were four groups of subjects, two composed of normal individuals, and two of patients residing at the Payne Whitney Psychiatric Clinic. One normal group (Group 3)* and one patient group (Group 4)* had the choice of hearing one of three voices speaking in a low, soporific tone, telling the subject to relax, think of nothing, but concentrate on the syllables. These instructions were identical with those used in the Corn-Becker experiment. In order to control the variables of verbal content and the sound of the voice as distractors, two other groups were used. Group 5 (normals) and Group 6 (patients) had the choice of hearing one of three voices producing the sound "E" with occasional pauses to simulate the pattern of actual speech, as in the instructions given to the other groups. The same voices were used in both types of recordings, and consisted of two male voices and one female voice.

The instructions given to all groups were as follows:

> "This is a test of the sweat activity of the palms of your hands. It is necessary to test you in absolute repose. In order to prevent you from thinking about anything that might worry you, we want you to read the meaningless syllables which will appear on the screen before you. You must read the syllables aloud. During the test, you will hear a sound (or voice) recording played on the wire recorder. You have a choice as to which sound (or voice) recording is to be played during the test. While I fasten these indicators to your hands, listen to the recorder and make your choice."

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* The two original groups in the Welch and Kubis experiment were designated Group 1 (normals) and Group 2 (patients), respectively.

SUBJECTS

The patients were residents at the Payne Whitney Psychiatric Clinic, with varying clinical diagnoses, but all evidencing pathologic anxiety at the time of the experiment. Table I gives the various diagnoses and the number of patients in each category. The normal groups consisted of students from the day session of Hunter College, who were enrolled in either elective or required psychology courses.

TABLE I.—DIAGNOSTIC CATEGORIES OF SUBJECTS SUFFERING FROM ANXIETY

(Groups 4 and 6)

Diagnosis	*Number of Subjects*
Anxiety neurosis	5
Compulsion neurosis	1
Depression	9
Schizophrenia	4
Hysteria	4
Anxiety symptoms, (drug addiction, cancer, alcoholism)	3

There were 13 patients in the group which heard the instructions to relax but concentrate (Group 4) and 17 students in the normal group which heard the same (Group 3). There were 13 patients in the group which heard the sound "E" (Group 6) and 11 students in the normal group (Group 5) hearing the same.

In the original experiment conducted by Welch and Kubis, there was no need to prescribe the number of trials in any experimental session, for as soon as the criterion of conditioning was reached, the session was at an end. However, in the present experiment, it was not feasible to keep the patients in the test situation for more than half an hour, which limited the maximum number of trials to thirty. Therefore, the data for the normal groups were also limited to this arbitrary number of trials.

TABLE II.—TOTAL NUMBER OF SUBJECTS AND THE NUMBER OF SUBJECTS WHO CONDITIONED IN LESS THAN THIRTY TRIALS IN EACH GROUP

Group	*No. of subjects*	*No. of subjects conditioning in less than 30 trials*
Welch and Kubis Experiment		
Normals (Group 1)	82	70
Patients (Group 2)	47	47
Wire-Recording: Instructions		
Normals (Group 3)	17	7
Patients (Group 4)	13	7
Wire-Recording: "E" Sound		
Normals (Group 5)	11	2
Patients (Group 6)	13	9

RESULTS

As can be seen from Table II, few of the subjects in any of the groups in the present experiment conditioned within thirty trials.

Table III shows the levels of significance of the differences between the various groups. Comparison was made between the proportions of the subjects in each group that conditioned under thirty trials to the total number of subjects in each group. Since the expected frequencies in some of the groups were under 10, neither Chi square nor a "t" test for differences in proportions could be used. Therefore an "exact" method (3, Section 21.02) was employed, based on the computation of the probabilities directly from the definition of probability.

TABLE III.—LEVELS OF SIGNIFICANCE OF THE DIFFERENCES BETWEEN THE VARIOUS GROUPS (BASED ON COMPUTATION OF THE PROBABILITY DIRECTLY)

	Welch & Kubis Experiment		*Wire-recording: Instruction*		*Wire-recording: "E" sound*	
	Normals	Patients	Normals	Patients	Normals	Patients
Welch & Kubis Experiment						
Normals (Group 1)		1%	1%		1%	
Patients (Group 2)	1%			1%		1%
Wire-recording: Instructions						
Normals (Group 3)	1%			72%	11%	
Patients (Group 4)		1%	72%			36%
Wire-recording: "E" sound						
Normals (Group 5)	1%		11%			2%
Patients (Group 6)		1%		36%	2%	

Computed in the above manner, the difference between the normal subjects (Group 1) and patients (Group 2) in the original Welch and Kubis experiment was significant at the 1 per cent level of confidence. This corresponds to the results reported by Welch and Kubis when they compared conditioning rates of these two groups, using a ratio based on differences between the mean conditioning rates. Further it was found that there was a significant difference at the 1 per cent level of confidence between the Welch and Kubis normal group (Group 1) and that of the normal groups (Groups 3 and 4) of the present experiment. The same was true for the differences between the Welch and Kubis patient group (Group 2) and the patient groups of the present experiment (Groups 4 and 6).

The differences were not significant, however, in the following cases: between the normal students (Group 3) and patients (Group 4) who heard the instructions; between the normal students hearing the instructions (Group 3) and those hearing the sound (Group 5); and between the patients hearing the instructions (Group 4) and those hearing the sound (Group 6).

Although the difference between the normal students hearing the sound (Group 5) and the patients hearing the sound (Group 6) was significant at the 2 per cent level of confidence, the null hypothesis was not rejected. Since the differences between Groups 3 (normal, instructions) and 4 (patients, instructions), between Groups 3 (normal, instructions) and 5 (normal, sound) and between Groups 4 (patients, instructions) and 6 (patients, sound) were insignificant, the above-mentioned difference at the 2 per cent level of confidence may merely represent a statistical fluctuation.

Another incidental finding revealed by the results seems to indicate that there was a difference in the effect of the distractor on patients suffering from different types of pathologies. Table IV shows that all patients with depression took a longer time to condition when presented with a distractor, as did most of the hysterics. Schizophrenics and anxiety neurotics, however, for the most part, were not as affected by the distractor. Because of the small number of subjects in each classification, no statistical analysis was made of the results with regard to this finding.

TABLE IV.—CONDITIONING RATES OF ANXIOUS PATIENTS IN VARIOUS CATEGORIES WHEN WIRE-RECORDING IS ADDED TO REGULAR ANXIETY-TEST SITUATION

Diagnosis	*Number of Patients Tested*	*Number Who Conditioned in 14 Trials or Less*
Anxiety neurosis	5	4
Compulsion neurosis	1	1
Depression	9	0
Schizophrenia	4	3
Hysteria	4	1
Anxiety symptoms (cancer, drug addiction, alcoholism)	3	0

DISCUSSION

A cursory review of the results obtained reveals a seeming contradiction between the present data and that of the conditioned sensations experiment (1) from which the use of the wire-recording was derived. In the present experiment, the recording reduced the incidence of conditioning, whereas in the conditioned sensation experiment, the difference in conditioning with the introduction of a wire-recording was statistically insignificant. Because the Corn-Becker et al. findings were insignificant, and there are so many differences in experimental technique between the two experiments, discussion of results will be restricted to a comparison between the original Welch and Kubis experiment and the current one.

A major problem posed by the data is the great reduction in the rate of conditioning caused by the addition of the recording. It could not have been the effect of the contents of the verbal instructions alone, since fairly similar results were obtained by means of sound. A shift in the direction of less conditioning might be expected in light of Pavlov's findings as to the effect of distractors on the conditioned response.

The second problem that presents itself for consideration is the fact that a clear distinction between the normal and patient populations can no longer be demonstrated. Despite the limitations of the present experimental design, i.e., the restriction of the number of trials to 30 only, the small number of subjects in the groups, and therefore the insensitive statistics, etc., the possibility of the distractor equalizing the two populations may be of significance.

Since the PGR was used in the conditioning process, a review of the known differences between abnormal and normal individuals with respect to this reflex may be of value. In the literature, there seems to be agreement on the fact that electrical resistance is decreased in states of tension and anxiety. In White's experiments on body tension and electrical resistance (10), a lower electrical resistance was found in tension than in relaxation. Recently, Staudt and Kubis (6) reported that the means of the electrical resistances during muscular tension were lower than those obtained when the subject was seated in a comfortable position. The lowest resistance, however, was found during complete relaxation (a reclining position) but this the authors state may not be a comparable situation to sitting under muscular tension and relaxation, since it involves a different circulatory tempo. Solomon and Darrow (5) state that where anxiety has taken the form of withdrawal, there is an extremely high palmar resistance. Low resistance, on the other hand, is more or less characteristic of chronic free anxiety.

The problem of anxiety and tension has also been dealt with on biochemical and psychiatric levels by Diethelm and others (2). They define anxiety as characterized by subjective feelings of uneasiness and apprehension, in the absence of any objective threat, while tension is characterized by feeling taut, with a subjective physiologic symptom of taut sensations in various muscles. While the research in the PGR and these various states did not differentiate between the two, further investigations in these areas may be fruitful. It should be stated that the designation of patient subjects with anxiety for the current experiment, and the original Welch and Kubis experiment, was made by Dr. Diethelm.

It is of interest to note that Robinson and Gantt (4, p. 251) in discussing the orienting reflex, state, "In animals subjected to severe nervous strain in the laboratory we have observed the reappearance of an OR which had been inhibited, or a marked increase in its intensity, if only partially inhibited, and in nervous patients we have noted exaggerated ORs." (OR refers to the orienting reflex.) Although Robinson and Gantt specifically measured motor, salivary, respiratory and cardiac components of the orienting reflex, it is probable that had PGR been measured, it would also have shown such exaggeration in nervous animals and humans.

Therefore, if it can be assumed that tension is an accompaniment of anxiety; that tension and anxiety are both accompanied by a decrease in resistance; that in anxiety states, the rate of conditioning is accelerated; and that a distractor decelerates the rate of conditioning in anxiety states; then a distractor should also affect the evidence of tension and anxiety as shown by the electrical resistance level of the skin. In other words, the distractor should also eliminate the differences in resistance levels between normals and abnormals.

As was noted in the "Results," there appeared to be a difference in the effectiveness of the distractor to delay conditioning in various clinical syndromes. Thus, most clearly, all the depression cases were affected, while there are evidences that the distractor was not so unequivocally effective in other types of illnesses. In a paper by Welch and Kubis on the stability of conditioning rate in patients with anxiety (9), they mention that of 6 hysterics tested, only 2 conditioned within fourteen trials, while 3 failed to condition and 1 conditioned at the rate of twenty-five buzzers. In view of the fact that only 1 of the 4 hysterics tested in the present experiment conditioned in less than fourteen trials, it would seem that the distractor did not affect the hysterical cases either. One might question whether the anxiety described by the patients and diagnosed by the psychiatrist is the same in the various syndromes, and whether it functions in the same manner. Of course, no conclusion can be drawn on the basis of the small number of samples in the current experiment. However, further work on this problem, as well as the others mentioned above, is at present planned by the authors.

SUMMARY AND CONCLUSIONS

Welch and Kubis (8) found a highly significant difference in the rate of conditioning the psychogalvanic reflex to a nonsense syllable paired with a buzzer between normals and patients with pathologic anxiety. Adding a wire-recording, which either gave instructions to concentrate, or emitted a continuous "E" sound, to the Welch and Kubis procedure, resulted in the following:

1. There was a statistically significant decrease in the rate of conditioning in both normals and patients, as a whole.
2. There was no longer a statistically significant difference between the conditioning rates of normals and patients as a whole.
3. Analysis of the rates of conditioning of patients with varying clinical diagnoses seemed to indicate that patients with some types of illnesses (neuroses, schizophrenia) are less affected by a distractor in a conditioning situation than are others (depressions).

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A RORSCHACH STUDY OF THE WIVES OF SEX OFFENDERS

ROSE PALM, Ph.D.*
AND
DAVID ABRAHAMSEN, M.D.†

In a previous paper (Abrahamsen, David and Palm, Rose: Family Role in Diagnosis and Treatment of Offenders. *J. Nerv. & Ment. Dis., 112*:4, October, 1950) we mentioned the fact that in studying offenders we introduced the procedure of administering psychological tests not only to the offender himself, but to all members of the family. Of these tests, we found the Rorschach of special value as it secures, in a relatively short time, information about a person's basic emotional structure, about feelings of which he himself is often unaware and which therefore he cannot express in personal contact. For this reason, the Rorschach test helped us to gain invaluable information about the personality structures of the people in the offender's environment, about the way in which they related to each other within the family, and therefore, about the emotional climate in which the offender was raised. The tests also helped us to evaluate the pressures against which he had been or still was reacting. Family testing contributed toward a better understanding of the offender himself and often threw a new light on the psychological motives which led him to commit his offenses.

In one of our cases, for instance, family testing revealed that the complaints of a young offender about the erratic and hostile ways of his mother were realistic and justified; test findings brought out that this offender all his life had been exposed to and had rebelled against the unreasonable behavior of a mother who was fully psychotic, a fact which had never been recognized.

In another case, test findings disclosed that one of our subjects was exposed to the company of an unusually sadistic brother and in this case removal from the home was advocated.

Family testing also helped us in rehabilitating the offender, as it rendered a picture of the resources in his immediate environment. In one instance we encouraged a young offender to establish a closer relationship with an older sister, tests revealing that she was the only stable member of the particular family.

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For reasons as stated above we extended our Rorschach research to investigate the psychology of the wives of offenders; to our knowledge this is the first time that such an attempt has been made.

RORSCHACH STUDIES OF THE WIVES OF EIGHT SEX OFFENDERS

In the following we shall report on a Rorschach study of the wives of eight offenders, convicted for rape. Since in every case the rape was committed during married life, the question arose as to whether certain factors in the marriage had played a role in precipitating the crime. Our purpose in testing these women was to detect the nature of their psychological make-up and the way it influenced the marital relationship.

While we realize that the number of cases is too small to warrant definite conclusions, these eight Rorschach records yet showed such an amazing similarity that we considered it worthwhile to report on them.

This similarity was expressed, specifically, in the concept these women had of men and in the particular way they related to them: a way of relating which appeared deeply embedded and was patterned after the relationship they had with their father in early childhood. The image of the father, as it transpired in the Rorschachs, was the following: all records without exception reflected the image and the influence of a threatening and sexually aggressive father figure. This figure was symbolized by responses such as: "a monster walking toward me," "a giant ape," "a horrible creature coming near," "a creature with big feet, staring at you," "a giant spider," and other similar concepts.

The presence, in our subjects, of fear of men was confirmed during subsequent interview sessions. They conveyed fear of being alone in their apartments lest they be raped; a fear of being followed on the streets; a fear of going out at night; a fear of colored men, or other fears of being attacked.

In the light of established psychoanalytic theory, one may assume that such marked fears actually represent a defense measure against an underlying wish to be attacked, raped, or sexually abused. This assumption, that our subjects unconsciously wanted to be handled aggressively was confirmed by a trait which was dominant in their Rorschachs: these women gave the type of responses indicating that in their manifest behavior they would relate to threatening figures in a markedly passive, submissive, and masochistic way. It is an interesting correlation to these findings that all wives had clung to their husbands despite cruel treatment, despite the husband's unfaithfulness, despite social disgrace, and often against the advice of parents and friends. While some of them ran away on occasion or separated temporarily, they always returned to their husbands. When asked, in individual interviews about this fact, they all indicated that fear or guilt had played a role. Some said that they returned out of fear of being killed, fear of being beaten, fear of reprisals to the people who sheltered them; others felt guilty for abandoning the husband or felt that only they could reform him.

If at this point we try to apply our findings toward the understanding of the marital relationship, the picture would appear simple: the offender needs an outlet for his sexual aggression and finds a submissive partner who unconsciously invites sexual abuse and whose masochistic needs are being fulfilled. Yet these eight marriages failed, although to all appearances the needs of both partners were satisfied. One may ask why.

The answer is that thus far we have considered only one side of the picture. Our Rorschachs revealed that the psychodynamics were far more complex and that the overt masochism and submissiveness of these women was a reaction to their strong underlying feelings of hostility against men. Their fear and guilt resulted from aggressive intents toward men, intents which were exemplified in such responses as: "a tiger skinned," "a monster squashed," "giants, their heads cut off," "the heads of two animals, blood dripping off," etc. These responses are easily recognized as the symbolic expression of death wishes in general and castration wishes in particular.

In trying to explain this latent aggressiveness we must now consider another factor, namely the influence of the mother. Which role did the mother play in the early development of these women? How is she characterized in the records? In regard to this question we distinguished two trends: in some records female figures were completely absent; this indicates that either our subjects had no female figure to identify with in early childhood or that they had ineffectual mothers. At any rate, the women of this type had identified with their aggressive fathers and had thus incorporated aggressive and masculine trends in their own make-up.

In the records of the second type, female figures were present but they were all seen as aggressive persons who were "pulling," "stamping," "mad-looking," and whose attributes such as "pointed hats standing on top of their heads," "hair-dos piled up high," symbolized them as phallic and masculine figures.

The conclusion that our subjects had identified either with aggressive males or with phallic females was strengthened by other factors. All eight women gave an unusually high amount of responses symbolizing the male sex organ, a feature which is found in the records of people for whom potency is a factor of conscious or unconscious concern. Responses of this nature were "caterpillars," "animals with elongated beaks," "snakes with their heads stuck out," "tree trunks," and others.

Our records furthermore revealed that our subjects were greatly preoccupied with thoughts about their own physical functioning. They considered themselves as "headless," "not developed right," or "out of proportion"; such responses reveal feelings of physical inferiority in general and feelings of being castrated in particular.

On the basis of this material it was apparent that these women, under the surface of their masochistic submissiveness showed a masculine and aggressive orientation. They tended to compete with men and to negate their femininity. There can be no doubt that they had latent homosexual inclinations. In this connection, it is interesting that the husbands, who were given psychiatric treatment in Sing Sing Prison, expressed various complaints about the lack of sexual spontaneity of their wives. They complained of having to "bribe" her, about their wife's habit of sleeping in her underwear, and generally about their frigidity. In some cases a prolonged period of sexual frustration proceeded the offense.

In drawing up a completed picture of the psychodynamics of our subjects the following emerges: We deal with the type of woman who, in her sexual attitude, stimulates aggression only to encounter it with rejection.

We may now ask ourselves which light this throws on the personality make-up of the offenders or how it figures in the motivations of rape.

COMPARISONS OF DATA ON WIVES AND MOTHERS OF SEX OFFENDERS

The choice of a marriage partner is not an incidental matter; this choice is largely determined by unconscious needs. Even in those cases where there appears to be a great deal of marital conflict at the surface, closer analysis will reveal that in this relationship certain unconscious needs are gratified. Which, one may ask were the unconscious gains of these eight offenders? Why did they all choose the type of wife who frustrated them?

In this study we have collected test data not only on the wives, but whenever possible also on the mothers of the offenders. If we study these records they, interestingly, seem to indicate that in his marital relationship the offender perpetuated certain aspects of the relationship he had with his mother.

In checking our case material, we found consistent indication of the fact that these rapists had been sexually overstimulated in childhood by their mothers or mother substitutes. In one case the offender was, at the age of twelve, introduced to sex practices by his mother. In another case, the mother was greatly concerned with her own physical functioning and would draw constant attention to her body; she also had her son take care of her when she was ill in bed. In a third case, the mother was described as "overprotective," with the implication that she petted her son a great deal and demanded constant physical contact.

While, at the surface, it would seem that the offenders had been given a great deal of care and affection by their mothers, they actually had experienced constant frustration. In some cases this frustration resulted directly from the fact that they were constantly stimulated but not satisfied. In most cases, however, seductive behavior by the mother alternated with cruelty and harshness and a great deal of beatings. One of the offenders who seemed consciously aware of this dual trait in his mother put it as follows: "my mother was like two people. Sometimes she was drunk, cruel, and the most abusive person alive, and yet at other times she was very sweet." In one of our cases the mother was seductive to the point of actual incest; then pressed charges against her son and had him arrested.

In the light of the above it would appear as if the rape, in these cases, was a displaced attempt to force a seductive and yet inconquerable and rejecting mother into giving.

This assumption may be substantiated by the following case: Peter, one of our eight offenders, was arrested for the first time when he broke into the apartment of a woman, hit her over the head—deliberately avoiding injuring her—and then forced her to have sexual intercourse with him. He stated afterward that upon entering the apartment his foremost thought was "to hit someone who did not want to be hit." He thought of rape but only vaguely. However, the woman began begging him to desist from raping her. This caused conflict in him because he felt that if he succumbed to her persuasions she would have "robbed him" of the satisfaction of imposing his will upon her.

According to superficial impressions, Peter had a good relationship with his mother who was described as protective of her children. Yet, the Rorschach test showed a different picture of the mother's underlying dynamics. The test showed that under the surface of protectiveness "this woman is actually possessive and rigid. She lacks sentiment and emotional responsiveness. She is sexually maladjusted, basically negativistic in regard to the role of a woman and a mother." According to the case history, Peter had all his life "adjusted" passively and obediently to this possessive mother. She described him as "a good boy" who never was a behavior problem. Yet, it was apparent that Peter had harbored feelings of strong frustration and of hostility which overwhelmed him at the time of the crime. He later on stated that he "wanted to force my will upon a woman, violently."

CONCLUSIONS

In the foregoing we have presented a study of the Rorschach records of the wives of eight rapists. Because of the striking consistency in these eight records, we should like to consider this study as a directive for further research.

In trying to answer our initial question as to how the personality of the wives influenced the offender and how this influence may figure in the crime, the following findings seemed of importance. These wives, at the surface, related to men in a submissive and masochistic way but latently negated their femininity and showed an aggressive, masculine orientation. Because of their particular personality structure they unconsciously invited sexual aggression only to encounter it with coldness and rejection. They stimulated their husbands into attempts to prove themselves, attempts which necessarily ended in frustration. In doing so, they unknowingly continued the type of relationship the offender had with his mother.

We are aware of the fact that the personality structure as described above is in no way typical of the wives of rapists and may be found in other women as well. However, there can be no doubt that the sexual frustration which they caused is one of the factors motivating rape, which might be tentatively described as a displaced attempt to force a seductive but rejecting mother into submission. Why, in this attempt, the sex offender resorts to the use of violence depends on other factors which go beyond the scope of this paper.

SOCIETY PROCEEDINGS

NEW YORK ACADEMY OF MEDICINE, SECTION OF NEUROLOGY AND PSYCHIATRY, AND THE NEW YORK NEUROLOGICAL SOCIETY

Joint Meeting, May 12, 1953

LOUIS HAUSMAN, M.D., *Chairman, Section of Neurology and Psychiatry, Presiding.*

(All papers presented by Residents and Fellows from various hospitals in New York.)

A NEW METHOD FOR THE STUDY OF CENTRAL INHIBITION BY CORTICAL CONDITIONED REFLEXES. FRANK MORRELL, M.D. (*by invitation*), MONTEFIORE HOSPITAL, NEW YORK.

Within a certain range of intensity the suppression of the normal 10 c/sec. alpha rhythm to a light stimulus is a specific inborn, unconditioned response. By successively pairing a sound stimulus of low intensity with the light stimulus the alpha rhythm can be conditioned to respond to a sound stimulus alone. The establishment and differentiation of conditioned reflexes imply the existence of specific excitatory and inhibitory processes, the magnitude and characteristics of which have never been directly observed. We employed two measurements: (1) the graphic demonstration in electroencephalographic tracings of the origin, course, and spread of the induced electrical activity, and (2) determination of the rate of cortical conduction between the occipital and precentral regions.

Three distinct forms of Pavlovian inhibition were established: extinction of conditioned reflex, delayed conditioning, and differential inhibition. The above measurements were made under each of these categories and our results indicate a significant delay in cortical conduction time whenever the inhibitory process is induced, as demonstrated by the EEG.

The significant delay in conduction time indicates the presence and measures the degree of the central inhibitory process.

FATALITIES IN MYASTHENIA GRAVIS. LEWIS P. ROWLAND, M.D. (*by invitation*), DEPARTMENT OF NEUROLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY; NEUROLOGICAL INSTITUTE, COLUMBIA-PRESBYTERIAN MEDICAL CENTER.

During the years 1932-1952, 156 patients with myasthenia gravis were seen at the Columbia-Presbyterian Medical Center; the known mortality rate was at least 30 per cent. The records of the 35 patients in whom terminal events were observed were reviewed in order to evaluate those factors which might be responsible for the high mortality. In 23 patients post-mortem examinations were performed.

Emphasis is placed on the recognition of premonitory episodes of respiratory failure, provision of adequate anticholinesterase, maintenance of patent airway, avoidance of sedation for symptoms of hypoxia, early use of the mechanical respirator, tracheotomy, and prevention of pulmonary complications. The frequency of sudden death and the possible respiratory and cardiac mechanisms are also discussed. The development of prostigmine refractoriness in the terminal phase was observed in several patients and one patient was unresponsive to prostigmine throughout the course of her disease.

The incidence of thymoma in the autopsy group was 30 per cent and 66 per cent had lymphorrhages in skeletal muscle. Three patients had lesions which involved destruction of muscle fibers accompanied by an inflammatory response and 2 patients had nonspecific myocarditis. All but 3 patients examined histologically showed some degree of pulmonary pathology.

Discussion.—DR. LAWRENCE H. GAHAGAN: What drugs are recommended in myasthenia gravis?

DR. ROWLAND: Prostigmine must still be named the standby; experiments are being tried with new drugs, but I do not think there are any that can completely replace prostigmine at the present time.

CEREBRAL ARTERIOVENOUS ANEURYSMS. MALCOLM B. CARPENTER, M.D. (*by invitation*), NEUROLOGICAL INSTITUTE.

Until recent years the diagnosis, localization, and treatment of cerebral arteriovenous aneurysms presented almost insurmountable difficulties. The frequency of these lesions compared with series of verified brain tumors was found to be about 2 per cent. Available evidence indicated such malformations occur twice as often in males as in females. The most common symptoms and signs in order of frequency were found to be: seizures (usually jacksonian or focal), spontaneous subarachnoid hemorrhage, intracerebral hemorrhage, psychic and mental disturbances, and headache (often migrainous in type). The diagnosis on clinical evidence alone is often impossible, but can be made on the basis of: (1) a history of focal or jacksonian seizures, (2) spontaneous subarachnoid calcification, (3) the presence of a bruit, and (4) roentgen evidence of floccular intracranial hemorrhage. Cerebral angiography offers the best method of establishing the presence of an arteriovenous aneurysm and affords preoperative study of the nature, extent, and precise localization of the lesion. Palliative procedures (viz., radiation of the lesion, surgical decompression, electrocoagulation, and carotid ligation) have proved to be unpredictable and sometimes disastrous as forms of treatment. Surgical extirpation of the aneurysm is the method of choice and the risk involved is considered to be less than the risk of leaving the lesion untreated. Recent adjuncts to neurosurgery (i.e., controlled hypotensive states) can be expected to lower the mortality statistics in the future. Three cases of large cerebral arteriovenous aneurysms treated by surgical extirpation of the lesions were presented. Follow-up cerebral arteriography was done to determine the completeness of the removals. Intracerebral hematomas existed in all cases. The progressive nature of the disease was abruptly interrupted and recovery followed without additional neurologic deficit.

EVALUATION OF SEIZURES IN THE ADULT. HERBERT L. MARTIN, M.D., AND FLETCHER MCDOWELL, M.D. (*by invitation*), BELLEVUE HOSPITAL (CORNELL DIVISION.

Two hundred and forty-five patients who developed seizures after the age of 12 have been investigated by various methods, including air encephalography. Ninety-one patients with generalized seizures, including 48 in whom the seizures began after 35 years of age, had a normal neurologic examination, skull x-ray, and spinal fluid examination, and an electroencephalogram not suggesting brain tumor. None of this group had intracranial mass lesions demonstrable on air encephalography. Seventy-four patients with generalized seizures, including 52 in whom the seizures began after 35 years of age, had evidence of focal brain dysfunction on neurologic examination and many had abnormalities in the skull x-ray or spinal fluid or had an electroencephalogram suggesting neoplasm. Forty-eight of this group of 74 patients had mass lesions and 10 had cortical atrophy demonstrable on air encephalography.

In a group of 55 patients over 12 years of age with focal seizures, 13 had negative examination and of these 3 had a mass lesion demonstrable by air encephalography. Thirty-nine of this group had evidence of focal brain dysfunction on neurologic examination and also abnormalities in certain of the ancillary studies. Thirty-three of these had mass lesions and 4 had cortical atrophy demonstrable by air encephalography.

Two hundred and fifteen in the total group of 245 patients had an electroencephalogram recorded. Of the 71 patients with supratentorial mass lesions excluding pituitary tumors, 49, or 70 per cent, had electroencephalograms suggestive of neoplasm. Out of the 215 electroencephalograms 52 suggested tumor and 49 of these patients had tumors. Electroencephalograms, however, are rarely the sole indication of the presence of intracranial mass lesions.

In short, when in patients with generalized seizures, beginning before or after the age of 35, the bedside neurologic examination fails to reveal evidence of focal brain dysfunction, air encephalography at that moment is not likely to demonstrate a mass lesion. It may, however, reveal cortical atrophy. When subsequent repeated bedside neurologic examinations first yield evidence of focal brain dysfunction, then air encephalography may contribute significantly to localization.

Discussion.—DR. THEODORE J. C. VON STORCH: While I agree wholeheartedly with the principle that has just been expressed, to wit, that neurologic examination is extremely valuable, and is often more valuable than a laboratory procedure, I think great caution should be used in evaluating electroencephalographic and pneumographic findings. One has to take into consideration how they are done and how they are recorded.

DR. MARTIN: I agree that is important; all of these patients had more than adequate, really expert, examinations.

DR. LOUIS HAUSMAN: I think Dr. Martin and Dr. McDowell deserve credit in emphasizing what is often forgotten, that there is no substitute for a good neurologic examination.

STUDIES ON HEADACHE: CEREBROSPINAL FLUID PULSATIONS AND TEMPORAL ARTERY PULSE WAVES IN MIGRAINE AND IN HEADACHE INDUCED BY AMYL NITRITE AND HISTAMINE: ACTION OF ERGOTAMINE. M. MARTIN TUNIS, M.D. (*by invitation*), PHILIPPE CARDON, M.D. (*by invitation*) AND HAROLD G. WOLFF, M.D., NEW YORK HOSPITAL.

An electromanometer connected with the lumbar subarachnoid space through a No. 20 needle was used to amplify CSF pulsations. The latter were recorded with simultaneous temporal artery pulse waves on a multiple channel direct writer. The CSF pulse wave tracings evidenced changes in the contractile state of large intracranial arteries, and were compared with simultaneous alterations in caliber of a representative extracranial artery, usually the right superficial temporal.

This method was employed in 20 normotensive patients with normal CSF pressure to study the vasoconstrictor action of intravenous ergotamine tartrate, 0.25 mg. (11 cases) and the vasodilator effect of amyl nitrite inhalation (6 cases) and histamine infusion 0.1 mg. (3 cases).

During right hemicrania, a large amplitude right temporal artery pulse wave, with a rounded apex, and outward convexity of the diastolic limb, was recorded. Pulse waves of this type* were obtained from the involved artery in numerous subjects during vascular headache. Seven minutes after the intravenous administration of 0.25 mg. of ergotamine, pulse wave amplitude was reduced 100 per cent and headache intensity markedly diminished. There was, however, no vasoconstrictor change in the simultaneously recorded CSF pulse waves. Further, when headache-free, the CSF pulse wave tracings were not significantly different from records obtained prior to and shortly following ergotamine therapy for the headache.

During headache induced by amyl nitrite inhalation and histamine infusion, the amplitude of the CSF pulse wave tracings was increased 300 to 600 per cent. When headache subsided the records returned to the control contour in all instances. Changes noted in the simultaneous temporal artery pulse wave records were often less marked, of shorter duration, and at times absent during the headache. As well, there was increased steepness of both the systolic and diastolic limbs of the CSF pulse wave and the contour of the descending limb was concave downward with prompt return to the base line during the headache. These findings indicated dilatation and distention of intracranial vascular structures and decreased vascular resistance.

* Tunis, M. M., and Wolff, H. G.: Analysis of Cranial Artery Pulse Waves in Patients with Vascular Headache of the Migraine Type. *Am. J. Md. Sc., 224:* 565, 1952.

Extracranial artery pulse waves from the involved vessel during spontaneous migraine headache also evidenced dilatation and distention. By contrast, however, in all instances, there was an outward convexity of the diastolic limb which indicated increased vascular resistance, probably related to intra- and peri-mural edema of the involved vascular structures.

In short, these pulse wave contour analyses define the differences between headache arising from intracranial arteries (amyl nitrite and histamine) as compared with vascular headache of the migraine type wherein extracranial vessels are the principal source of the head pain.

Discussion.—DR. PHILIPPE CARDON: It should be emphasized that this is a very simple technique. Anyone who has an electrical device for recording pressure can do it. What we used is an electromanometer. The usual clinical needle is placed in the subarachnoid space. It is easy to set up, and it will be interesting to see what the possibilities are for picking up intracranial pathology. For instance, I should think that in a patient with an arteriovenous aneurysm we would get tracings very much like the amyl nitrite tracings shown by Dr. Tunis.

OBSERVATIONS ON WATER AND ELECTROLYTE METABOLISM IN MIGRAINE. WILLIAM W. SCHOTTSTAEDT, M.D. (*by invitation*), DEPARTMENTS OF MEDICINE AND PSYCHIATRY, NEW YORK HOSPITAL-CORNELL MEDICAL CENTER.

Preliminary studies of renal excretion of water and electrolytes have been performed on healthy individuals with and without headache. These studies suggest that there are major alterations in fluid and electrolyte balance in association with headache characterized by low rates of excretion of water, sodium, potassium, and creatinine prior to headache and high rates of excretion during the phase of subsidence of headache. Where disappearance of headache has not been associated with increased urinary volume, the subject has remained in a headache-prone state as evidenced by prompt recurrence of headache.

ALCOHOLIC PSYCHOSES, PARANOID TYPE. FINLEY GAYLE, III, M.D. (*by invitation*), NEW YORK HOSPITAL, WESTCHESTER DIVISION, WHITE PLAINS, N. Y. (Abstract not received.)

Discussion.—DR. JAMES H. WALL: I think this paper is very interesting in view of some of the difficulties we have been running into in some of the public hospitals lately. We see individuals who with excessive drinking become aggressive, and yet after several months treatment are nonpsychotic and entirely well, and should be discharged, but no one can guarantee that such individuals will not drink again and get into difficulty.

CLINICAL AND EEG STUDIES OF DEMEROL ADDICTION. WILLIAM D. VOORHEES, JR., M.D., JAMES F. MASTERSON, JR., M.D., AND ALBERT N. BROWNE-MAYERS, M.D. (*by invitation*), CORNELL UNIVERSITY MEDICAL COLLEGE AND NEW YORK HOSPITAL (PAYNE WHITNEY PSYCHIATRIC CLINIC).

The clinical and electroencephalographic records of 5 male and 3 female demerol addicts between 28 and 60 years of age were studied. All were voluntary hospital patients, poorly oriented to psychotherapy, who insisted on being discharged prematurely. Although all the patients stressed physical discomfort as the initial reason for using demerol, 5 recognized that emotional factors led to its continued use. Symptoms following withdrawal of demerol were minimal and apparently unrelated to the reported daily dosage or the rapidity of withdrawal, except for a woman who had a series of epileptiform seizures and a man who developed a panic. Intensive directive psychotherapy, a full hospital program of occupational and recreational therapy, and segregation from previously withdrawn addicts combined to minimize symptoms. Personality studies revealed that the patients were proud, tense, rigid, capable people, unable to accept their shortcomings, and striving for recognition. A careful scrutiny of their interpersonal relationships revealed psychopathic features in only 3 of the patients.

Admission electroencephalograms showed 6 to 7 per second slow activity on several patients who had normal records four weeks later. One patient showed mild changes on her admission electroencephalogram, but three weeks after withdrawal a left anterior temporal focus appeared. The electroencephalographic findings were variable and appeared to be influenced both by the amounts of demerol taken and the sensitivity of the cerebral physiology to the drug.

Discussion.—DR. H. J. WIENER: Was the drug taken by mouth or by needle in the majority of cases?

DR. VOORHEES: It was taken by needle in all cases.

NERVOUS SYSTEM DISORDER IN LEUKEMIA: CLINICOPATHOLOGIC STUDY. WALTER SENCER, M.D. (*by invitation*), THE MOUNT SINAI HOSPITAL.

Although central nervous involvement in leukemia occurs, rarely does the blood dyscrasia simulate a neoplasm and especially is it uncommon for the disease to present itself early neurologically and only later with evidence of hematologic pathology. The following case illustrates this point. A 42 year old man was admitted with a cervical root syndrome of 10 weeks' duration with sudden onset of pain in the right arm radiating to the first, second, and third fingers. This was followed by pin and needle sensations and weakness in the right foot. One week prior to admission blurring of vision and diplopia occurred on looking to the left. Three days prior to admission he noted that food became lost in his left cheek.

Physical examination on admission was negative except for a 3 cm. hard mass in the manubrium sterni. Neurologic examination—Cranial nerves: there was weakness of the left external rectus with diplopia on left lateral gaze; the corneal reflexes were absent; there was left peripheral facial paresis. Motor: the right upper extremity was paretic and pain occurred with shoulder retraction. Reflexes: the right triceps was absent and the left knee jerk decreased. Sensory: There was hypalgesia over the radial aspect of the right forearm. Laboratory: On admission a complete blood count and urinalysis were normal. The sedimentation rate was 2 and 4 mm. per hour. The heterophile antibody titer was negative. Stool guaiac was negative.

The spinal fluid was clear, the initial pressure 140 mm. Free manometrics. There were 116 white blood cells, 98 per cent lymphocytes, 2 per cent polynuclears; the protein was 112 mg. per cent; the serology was negative. The EEG was normal. Caloric test revealed impairment of the right vestibular apparatus. Radiologic examination of the skull, chest, sternum, and vertebrae was normal.

Course: During the last three weeks there was marked fluctuation of neurologic findings with bilateral involvement pointing to a lesion in the spinal cord and brain stem. The patient developed nystagmus and a medial longitudinal fasciculus syndrome. Sternal marrow examination and lymph node biopsy were normal during the second week of admission. The patient went progressively downhill and on the 28th hospital day became disoriented and hepatomegaly and splenomegaly were noted. The peripheral blood then showed 85,450 white blood cells, 82 per cent lymphocytes, 11 prolymphocytes, 3 segmented, 2 nonsegmented, 2 eosinophils, 1 normoblast, 1 erythroblast per 100 white blood cells. The sternal marrow showed 100 per cent myeloblasts. The patient died five days later. Pathologic examination revealed diffuse infiltration of the nervous system including the brain stem, brachial plexus, and oculomotor nerve. There was tumor formation at the manubrium sterni which consisted of leukemic cells. This case is interesting in that the acute illness with multiple and fluctuating neurologic findings pointed to an infectious or demyelinating disease with no laboratory evidence of a blood dyscrasia until a week prior to death.

AN ETIOLOGIC SURVEY OF APHASICS WITHOUT HEMIPLEGIA. ARTHUR E. GILLMAN, M.D., AND STEFAN SZANCER, M. D. (*by invitation*), BELLEVUE HOSPITAL, NEW YORK UNIVERSITY DIVISION.

Many patients are admitted to the Bellevue Hospital Psychiatric Division because of a disturbance in communication. In a relatively large number of instances the difficulty is due to an aphasia not associated with other neurologic signs. This language disturbance apparently creates anxiety in both the patient and the observer, and oftentimes a diagnosis of agitated depression or schizophrenia is entertained. Little information could be found in the literature as to whether aphasia occurring as the only or major sign favored one particular etiology over others. The clinical course and etiology in such patients were investigated.

Fifty-eight patients admitted to the Neurologic Wards of the Bellevue Hospital Psychiatric Division between 1948 and 1952 who demonstrated an aphasic difficulty without other neurologic signs (33—Group I) or with minimal associated neurologic findings (25—Group II) were investigated.

It was found that a variety of etiologies existed and that there was no significant difference between the two groups. Vascular disease according to the criteria used was the most probable cause of this condition. It comprised a little less than half of the total number of patients studied (23 cases). Trauma also was a frequent cause of aphasia (16 cases). Twelve of these did not have signs other than the aphasia on admission. The greatest degree and rate of recovery occurred in these patients. Degenerative disease (presenile dementia) was next in frequency (11 cases). Here no improvement was noted. The percentage of neoplasm was unexpectedly small (3 cases or approximately 5 per cent of the total). All of the patients with neoplasm were in Group I, that is, associated with some other less apparent neurologic manifestation.

Emphasis was made of the fact that the psychogenic factors secondary to language disorders are very common and often can obscure the underlying basic neural dysfunction.

BOOK NOTES AND REVIEWS

Books received are acknowledged and given a brief description in this section. Selections serving a variety of interests will be made from these for a more extensive review, as far as space will allow.

BOOK NOTES

Ashby, W. Ross. DESIGN FOR A BRAIN. [New York: John Wiley & Sons, Inc., 1952. Pp. 260. $6.00.]

The scientific work of Dr. Ashby has been recognized for many years. For at least twenty-five years he has been studying the physical principles which govern behavior. By the usual trial and error procedures he has been able, finally, to develop the "Homeostat", a new type of mechanical "brain" which is capable of self-regulation.

There are eighteen chapters and an appendix comprising the book. The first five chapters deal with foundations, the definition of concepts, and the discussion of the equivalences between certain physical, physiological and psychological concepts and phenomena. The next two chapters are devoted to the development of advanced concepts and chapter 8 brings into focus the important *principle of ultrastability*. The following two chapters show how this principle explains the power of the organism's adaptability in terms of nervous system structure and function. The remaining eight chapters deal with part functions, properties of systems, and various possibilities. The appendix contains the mathematical bases and forms.

This original advance in the knowledge of cybernetics will command the interest of neurophysiologists, physicists and other investigators in the subject the world over, and is a must for all concerned, since it shows how intelligent behavior can emerge from a mechanical system.

Blake, R. R. and Ramsey, G. V. (Eds.). PERCEPTION—AN APPROACH TO PERSONALITY. [New York: The Ronald Press Co., 1951. Pp. 442. $6.00.]

The research findings and personal observations of fifteen psychologists from many universities are presented here as an attempt at a beginning of a systematic theory of personality in terms of perception. At the 1949-50 Clinical Psychology Symposium held at the University of Texas, the structural, chemical, environmental, cultural, unconscious and lingual aspects of perception were treated. These aspects were not merely discussed by "experts" who each made a contribution from their own field without reference to the contribution of the others, but a successful integration of topics was achieved. The reader obtains the happy feeling that this symposium was another step in the study of personality as a many faceted, but complexly integrated "whole".

In the opening chapter the editor and his associates after establishing the fact that "raw perception" can never be absolutely valid, nevertheless recognize that there can be no suspension of judgement in an environment that is never static. So they set forth the investigations of the contributors into the realm of behavior. A notable contribution is made by the late Count Korzybski in his treatment of the problems of verbalization. Carl R. Rogers presented one of the most interesting chapters on the reorganization of perception of clients after therapy.

This book is well illustrated and has a handy index for quick reference. It will be a valuable book for advanced study not only in psychology but other allied fields.

M. C. A. LANES.

Greenacre, Phyllis, (Ed.). AFFECTIVE DISORDERS: PSYCHOANALYTIC CONTRIBUTION TO THEIR STUDY. [New York: International Universities Press, 1953. Pp. 272. $3.00.]

The five papers in this volume were part of the panel discussions on affective disorders held at meetings of the American Psychoanalytic Association in 1950 and 1951. There was not attempt made to systematically cover the field. Each worker contributed whatever especially interested him. Different aspects and points of views were exhibited. Greenacre contributes a brief prefactory introduction. The contributions are: Bibring's "The Mechanism of Repression," Edith Jacobson's "Contribution to the Metapsychology of Cyclothymic Depression", Elizabeth Zetzel's "The Depressive Position", Gero's "An Equivalent of Depression: Anorexia", and, lastly, Maurits Katan's "Mania and the Pleasure Principle: Primary and Secondary Symptoms."

Bibring's paper strikes one as unusually clear, well thought out, and illuminating. This is in sharp contrast to Jacobsen's metapsychological discussion which seems nearly as confusing to the author as it appears to the reader. Rarified distinctions are made which have little clinical application; and one wonders if they have any application beyond the author's own interest. The other papers are certainly helpful discussions. The whole problem of depressions has been much neglected in recent years and such papers are welcome enough—even though their light may be relatively weak.

JOSEPH ZINKIN.

Lowenstein, Rudolph M.: CHRISTIANS AND JEWS: A PSYCHOANALYTIC STUDY. [New York: International Universities Press, 1951. Pp. 224. $3.25.]

A great deal has been written on the subject of anti-semitism in attempts to explain attitudes that have existed for centuries. Of all the books written to date the present volume is the most outstanding in its objectivity and precise formulation of the psychodynamics involved in this form of individual and group psychology.

The author has taken into due consideration the various historical, economic, political, and religious factors that have exerted an influence in the over-all picture as seen today. He has presented a study of the psychopathology of the relationship between Jews and Christians from the standpoint of clinical psychoanalysis.

Throughout the text one may find a number of controversial points and issues, but the subject is a particularly complex one and there are a number of problematic aspects for which there is no clear cut solution in sight. Psychoanalytic interpretation does not necessarily clarify such problems whether individual or social as much of psychoanalysis is still superstructural and conceptual in nature. Those interested in the subject will find this book most interesting and thought-provoking reading.

Nurnberger, John I. and Korey, Saul R. PITUITARY CHROMOPHOBE ADENOMAS: NEUROLOGY, METABOLISM, THERAPY: [New York: Springer Publishing Company Inc., 1953. Pp. 282 with 23 tables and 34 figures. $7.00.]

This well illustrated adequately documented monograph presents a comprehensive description of the anatomical, physiological, pathological and clinical features of the pituitary chromophobe adenomas. It represents an enormous amount of careful investigation and thought.

There is an informative review of the literature on the Sellar Syndrome and an analysis of the 117 cases studied at the New York Neurological Institute and Presbyterian Hospital from 1929 to 1948.

One is impressed that it is the most thoroughly integrated study of the chromophobe adenomas, since it coordinates so many of the different metabolic and clinical aspects and therapeutic attempts not brought together elsewhere. Surgical, medical, deep x-ray and endocrine treatments are described. The book contains 533 references and will serve as a valuable tool in the neurological clinic and laboratory.

Senn, Milton J. E. (Ed.) PROBLEMS OF INFANCY AND CHILDHOOD. [New York: Josiah Macy Jr. Foundation, 1951. Pp. 181: $2.50.]

The Josiah Macy Jr. Foundation has sponsored several conference groups for the purpose of promoting communication and interrelationships among various scientific disciplines. This little book contains the verbatim report of the informal discussions of the Fourth Conference on Infancy and Childhood held in March 1950. The topics covered were Cultural Determinants of Parental Attitudes and Working Toward Healthy Personality.

These conferences are composed of participants who have had experience in the field selected for coverage. The members are encouraged to talk freely, to speculate if desirable and to utilize intuitive approaches to the full. Therefore, as to be expected, there is a mixture of logic and belief and wishful thinking in what is said and recorded. Usually no solutions are attained, but this is certainly healthy thinking in an area where so little of a positive or uncontroversial nature is known today.

The book is stimulating and may be recommended highly to physicians, psychologists, sociologists, teachers and students who will be interested in these questions and discussions.

BOOK REVIEWS

Bull, Nina. The Attitude Theory of Emotion. [New York: *Nervous and Mental Disease Monographs (no. 81),* 1951. Pp. 159. $6.00.]

The author is director of the Research Project for the Study of Motor Attitudes in Emotion, Psychiatric Institute, New York City. Much of the material here integrated has been published as separate reports over the past ten years in the *Journal of Nervous and Mental Disease, Psychosomatic Medicine,* and elsewhere.

This is psychology with attention focused on motor components of behavior as initiating and constituting integral parts of the ongoing course of mentation. Emotion is considered as a process, not as a state, and the sequential stages therein are examined. The first step in this process is a "preparatory motor attitude" (including skeleto-muscular, visceral and glandular factors), toward or away from something. When this preparation is on the threshold of action, conscious emotion dawns, a kind of purpose is felt for an action to be carried out; if it is carried out, the preparational and emotional tensions subside; with appropriate disappearance of these the subject is in a position to take a new attitude.

The above is a brief outline of the emotional process according to the attitude theory of emotion, which holds that an emotion cannot occur without a preparatory motor attitude, nor without some bit of lingering on the threshold (i. e. delay) between preparatory attitude and consummatory action. It is during this delay that emotion becomes full-blown, or conscious. For example, in the schema of the attitude theory, one may consider 1) the "character-armor" of Wilhelm Reich, in which an indefinitely-long preparatory motor attitude is noted, but feeling-consciousness is not experienced by the subject, a consummatory act is not carried out, and relaxation does not occur; 2) impulsive or compulsive acts ("automatic behavior"), in which an emotion is not experienced by the subject but a quasi-consummatory act is rapidly carried out and relaxation (often brief) occurs; 3) a somehow "normal" (reviewer's quotes) emotional process, in which a preparatory attitude is taken; an emotional feeling dawns after a slight delay and becomes full-blown in the subject; some consummatory action is engaged in by the subject, and the emotion subsides.

Conflicts among attitudes, repression, somatization, conversion and the like, can profitably be considered within the framework of preparatory attitudes and emotional processes. The same is true of questions as to why certain thoughts do or do not make themselves available in consciousness at a given moment; or why an emotional feeling appears or fails to appear, the subject instead feeling tense and keyed up or nervous, without identifying a clear-cut emotion in himself. In the opinion of this reviewer, a number of different approaches in psychiatry and related fields are definitely brought closer together, as C. J. Herrick remarks in his introduction to the book. Some specific emotions are fruitfully examined in ingenious and original experiments, to be described briefly below, which were designed to test the foregoing sequence-hypothesis. Included in the experimental evidence is a chapter contributed by James W. Papez which correlates the attitude theory with his well-known *Proposed Mechanisms of Emotion*.

Part I of the book begins with a detailed exposition of the attitude theory, with diagrams. Then follows a chapter on precursors of the theory in which previous work by various authors is cited and compared. An important stream contributing to the orientation of this book comes from Coghill and C. J. Herrick. (The salamander larva, which Coghill studied intensively for many years, shows swimming movements, in which all the trunk musculature coordinately participates, at an embryonic stage in which there are motor neurons contacting muscle cells, but as yet no sensory neurons.)

In Part II experiments are reported which were devised to test the theory. These consist of two series of hypnotic sessions, the subjects in each case being volunteer university students. The purpose of the first series was to demonstrate whether or not a given emotion, "anger", for example, has a characteristic motor pattern. Briefly, the subjects were commanded to experience a certain emotion in response to a stimulus-word, say "anger", and their observable behavior and subjective reports were recorded in detail and compared. It was found that as they felt the mental states of disgust, fear, anger, depression, triumph and joy, respectively, they assumed consistently a certain type of motor attitude for each.

In the second series, with a fresh group of subjects, a specific postural set was first induced by suggestion in the form of compact descriptive phrases summarizing the usual reaction to a particular stimulus-word from the first series of experiments. This time the suggestion was given in purely bodily terms. Instead of the stimulus-word "depression", for example, the formula employed was: "You feel heavy all over; there is a slumping sensation in your chest." After the postural set of depression was thus induced, the subject was by suggestion "locked" in this position. He was then given the name of a contrasting emotion and commanded to experience it. Invariably, if the subjects were unable to shift their "motor attitude", they reported inability to feel the prescribed new emotion. ("Can't feel joy in this position", "Can't feel depressed with a feeling of lightness in my body", etc., they said.) This, to the present reviewer, was one of the most cogent portions of the book, certainly presumptive evidence in behalf of the attitude theory, and is recommended both for its general substance and for its descriptions of different specific emotional sequences.

Individual variations in behavior, for example in degree of overt vs. internal expression or internalization of emotional processes, might be usefully explored by the same method. Take for instance hypnotically-induced "disgust" in the first series of experiments: Most of the subjects reported nausea and were observed to have a pained and disgusted expression of the face; one subject, however, reported less gastrointestinal sensation and showed much more of this type of facial activity.

The validity of these findings, and the admissability of hypnosis as an experimental method, are questions to which a section of the Supplement is devoted with considerable objectivity. The book includes some earlier revised papers of the author on the orienting roles (toward an object) of olfaction and vision, and one on the dual (conflicting) character of fear. The chapter on vision appears to be germane to some findings of studies in depth-perception and stereoscopy: Orientation and binocularity are at their least in an organism getting ready for flight—the eyes acting as a pair of wide-angle lenses taking in the greatest possible total field; in an organism prepared for pursuit or attack, orientation and binocular synergy are at a maximum, with the axes of the two globes "intersecting at the prey." A number of observations on the mechanism of strabismus and phorias are presented. As for fear, it includes the two reactions of "Turn and flee" vs. "Stay and find out more about the danger", with motor elements subserving each identifiable in the behavior of an organism experiencing fear. These papers antedated the general formulation of the attitude theory, lead up to it, and are well worth reading for their own subject matter.

The literary style is for the most part pleasant and lucid.

This monograph on emotion is recommended as one which is original in its thesis and at the same time cognizant of and attentive to the work of others, which is discussed without polemics and in a blending and unifying way.

[J. Johnstone, Jr.]

BOOKS RECEIVED FOR REVIEW

Gordon, R. *The Epileptic Cramp Attack As a Psychosomatic Reaction.* Ejnar Munksgaard, Copenhagen, Denmark.

Jenkins, R. L. *Breaking Patterns of Defeat.* J. B. Lippincott Co., Phila. Pa.

Schneck, J. M. *Studies in Scientific Hypnosis.* Williams & Wilkins Co., Baltimore, Md.

Schultz, J. H. *Arzt und Neurose.* Georg Thieme Verlag, Stuttgart, Germany.

Soriano, V. *Traumatismos Medulares.* Editorial Labor, Buenos Aires, Argentina and Montevideo, Uruguay.

Tredgold, A. F. and Tredgold, R. F. *Manual of Psychological Medicine.* Baillier, Tindall and Cox, London, England. Williams & Wilkins Co., Baltimore, Md.

NOTES AND NEWS

RESEARCH GRANTS ANNOUNCED BY NAMH—ANNUAL MEETING SET

Leading Authorities in Mental Health Field to Speak—300 Delegates in Attendance

Grants totalling $64,795 have been allocated by the National Association for Mental Health for schizophrenia research during 1954. Announcement of the grants was made by the association on the eve of its annual meeting, scheduled October 31-November 2 in Cleveland. More than 300 local and state mental health associations registered delegates to attend the meeting, according to Robert M. Heininger, executive director.

The research grants were made from a fund provided by the Supreme Council, 33rd Degree Scottish Rite, which has given a total of more than a million dollars in the last 20 years for this purpose. Included in the 13 current projects supported by the new grants are two studies at the New York State Psychiatric Institute. Dr. Franz J. Kallmann is conducting a study of the hereditary influences in dementia praecox through the comparison of coincidence in this disorder in identical and fraternal twins. Dr. Heinrich D. Waelsch is engaged in a study of chemical changes, involving nuclear protein, in dementia praecox.

Three new projects receiving initial support include a study of childhood schizophrenia by Dr. Ralph D. Rabinovitch at the University of Michigan, a study of projective techniques in early schizophrenia being made at Columbia University by Dr. Sigmund Pietrowski, and purchase of equipment to be used in psychological studies by Dr. Alfred Washburn of the Child Research Council, University of Colorado.

Dr. Ernst Kretschmer of Tübingen celebrated his 65th birthday on October 9, 1953. We feel sure that all Dr. Kretschmer's friends and acquaintances will be glad to join the Journal of Nervous and Mental Disease in wishing him, though belatedly, many more years of good health and happiness.

At the next and last lecture in the Fourth Annual North Shore Health Resort 225 Sheridan Rd., Winnetka, Ill. Lecture Series on "Treatment in Psychiatry" on June 2, 1954, Daniel Blain, M.D., who is Medical Director, American Psychiatric Association; Clinical Professor of Psychiatry, Georgetown University, School of Medicine; Consultant to United States Public Health Service, Veterans Administration, National Association of Mental Health; Member, Expert Panel on Mental Health, World Health Organization, will talk on "How the General Practitioner Can Contribute Toward Healthy Emotional Development," at 8:00 P.M.

This lecture series is open to all physicians without charge.

The eighth annual meeting of the American Electroencephalographic Society will take place at the Hotel Claridge, Atlantic City, New Jersey on June 11th, 12th and 13th immediately preceding the annual meeting of the American Neurological Association. The scientific sessions will start on Friday afternoon, June 11th.

A symposium on "The Rhinencephalon" (Its Relationship to Both Clinical Electroencephalography and Experimental Neurophysiology with Special Reference to Its Electrical Activity in Relation to Behavior and Symptoms) under the Chairmanship of Dr. Robert Schwab will be held on Sunday, June 13th from 9:00 A.M. until 1:00 P.M.

There will be a special session on Medico-Legal Aspects of Clinical Electroencephalography, Moderator will be Dr. A. Earl Walker, on Friday, June 11th from 8:00 P.M. until 10:00 P.M.

The annual banquet will take place Saturday, June 12th at 8:00 P.M. Business sessions will take place Friday, June 11th from 4:00 P.M. to 6:00 P.M. and 10:00 P.M. to 12:00 P.M.

Committee and Council meetings will be held all day Thursday, June 10th and Friday, June 11th, from 9:00 A.M. until 12:00 M. The registration desk will be open on Friday, June 11th, at 9:30 A.M.

INSTRUCTIONS TO AUTHORS

1. Bibliographies should be in alphabetical order. These references should include: name of author, title of article, name of journal, volume, page and year. When books are cited, include author, title, year of publication and publisher.
2. Footnotes should be omitted unless very brief. Material usually placed in footnotes should be incorporated in the text.
3. Manuscripts, which should represent the final form of the material, should be typewritten double spaced, including footnotes, case reports, bibliographies, and only the original will be accepted for publication. Handwritten corrections must be legible and kept to a minimum.
4. Illustrations for halftones should be glossy photographic prints; for line engravings, drawings should be made with black India ink on white paper or blue graph paper.
5. Our editorial office should be promptly notified of any change of address.

NOTICE: All editorial matter should be sent with postage to Dr. Nolan D. C. Lewis, 70 Pine St., New York 5, N. Y. Authors are requested to omit numbers from bibliographies and arrange same alphabetically.

All business communications should be addressed to THE JOURNAL OF NERVOUS AND MENTAL DISEASE, 70 Pine St., New York 5, N. Y.

We are pleased to announce that effective with the April issue

THE WILLIAMS AND WILKINS COMPANY
Mount Royal and Guilford Aves.
Baltimore 2, Maryland

will have charge of the production and distribution of the JOURNAL. The PSYCHOANALYTIC REVIEW will also be printed and distributed by the Williams and Wilkins Company starting with the July number. The NERVOUS AND MENTAL DISEASE MONOGRAPHS are now being handled by the same firm.

The ownership, which has not changed, and Dr. Lewis, who will continue in his capacity of editor, feel sure that all concerned will welcome the change made desirable because of an increasing difficulty in securing the help necessary to the proper functioning of the organization and the good service due all subscribers and collaborators. The Williams and Wilkins Company needs no introduction. It is not only well known in the field of scientific publishing, but is rated as an outstanding business concern.

Our readers will please note that subscriptions to the above mentioned periodicals should be sent to the Williams and Wilkins Company, as well as advertising orders and changes of copy, also orders for monographs. All remittances should be made payable to The Williams and Wilkins Company. Manuscripts, books for review and exchange journals should be sent to Dr. Nolan D. C. Lewis, New Jersey Neuro-Psychiatric Institute, Box 1000, Princeton, N.J.